

In This Issue—*The Way to Greater Automotive Sales*

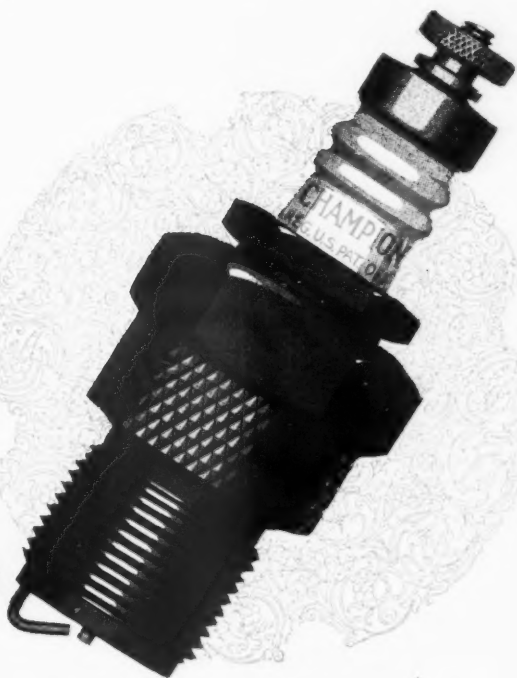
# MOTOR AGE

Vol. XLVI  
Number 7

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CHICAGO, AUGUST 14, 1927

Thirty-five Cents a Copy  
Three Dollars a Year

No. 3  
for  
Willis Knight



## Full Set Once a Year

It is real economy for motorists to install a full set of dependable Champion spark plugs at least once a year. Oil and gas are saved and engine performance is greatly improved.

Thousands of dealers have come to see that they are doing the car owner a

favor by recommending that new Champions be installed. These merchants are building good will and making a greater profit by rendering a valuable service to motorists.

**Champion Spark Plug Company**  
Toledo, Ohio  
Champion Spark Plug Co. of Canada, Ltd. Windsor, Ont.

# CHAMPION

*Dependable for Every Engine*



*Champion is the standard spark plug for Ford Cars and Trucks and Fordson Tractors. Recognized by dealers and owners for 12 years as the most economical and efficient spark plug. Sold by dealers everywhere.*

# Get a

# Manley

## Hints on Selecting a Garage Press

1. Your own judgment of mechanical construction will enable you to form a good opinion as to strength. If you buy a press rated at 30 tons capacity you don't want to feel that your press will break down if you happen to apply thirty-three tons pressure on some hard job. Get the "huskiest" 30-ton press you can buy.
2. There are times when straight pressure will not do the job. It is preferable to select a press which has the top end of the screw exposed. This enables you to jar a stubborn part loose by a hammer blow on the exposed end of the screw. In extreme cases you can thus get the effect of approximately 100 tons. Of course, the press must be designed to take such jolts.
3. Be sure that the hand levers are in a natural position to enable you to exert maximum pressure with minimum effort; Be sure the levers are arranged so you can use them conveniently and at the same time keep your eyes on the work.
4. A Garage Press should be arranged for a quick change of speeds and leverages, so you can handle either light or very heavy work without delay changing leverages.
5. Get a press with a wide clearance between the vertical uprights.
6. A press with a double table is to be preferred to one on which a single table must be adjusted to different heights. Long and short noses should be provided with the press for the same reason.
7. A heavy garage press on which a high speed rack and pinion arbor press is mounted enables two men to do press work at the same time.



8. Always buy a press which is well known. Goods manufactured and guaranteed by big reliable concerns are always safest.



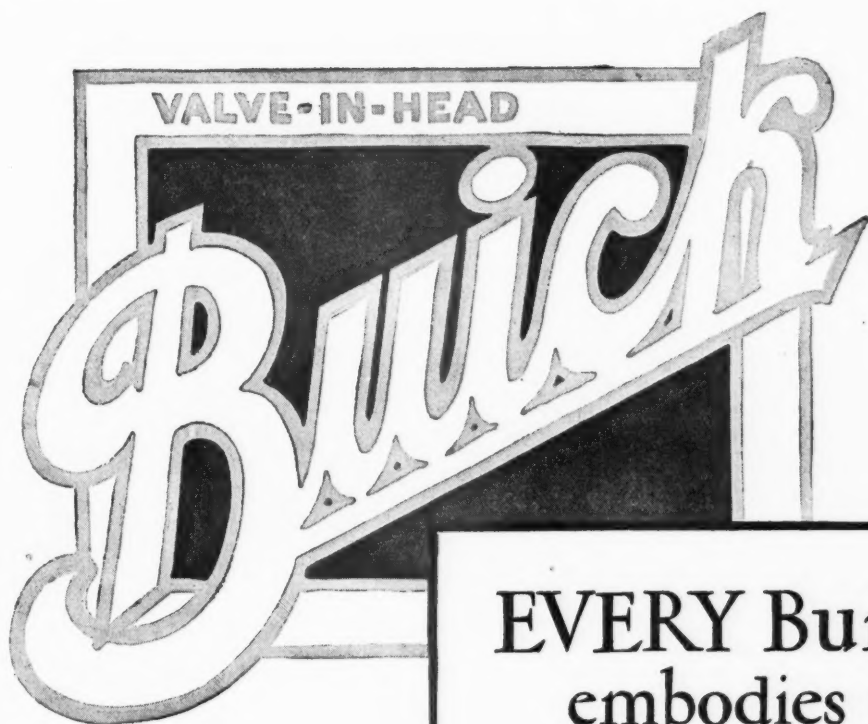
GET A MANLEY

It Meets All These Requirements

Write for special bulletin.

**Manley Mfg. Co., York, Pa.**





## EVERY Buick Model embodies these fund- amental Buick features

6-Cylinder Buick Valve-in-Head Engine  
 Buick Four-Wheel Brakes  
 Complete Automatic Engine Lubrication  
 Low Pressure Tires  
 Third Member Drive  
 One-piece Full Ventilating Windshield  
 (On all Closed Models)  
 Cantilever Rear Springs  
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 Buick Velvet Action Instantaneous Clutch

WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

### Standard Sixes

Open Models  
 2-pass. Roadster . . . \$1150  
 5-pass. Touring . . . 1175

Closed Models  
 5-pass. Double Service  
 Sedan . . . . . \$1475  
 5 pass. Sedan . . . . 1665  
 4-pass. Coupe . . . . 1565  
 2-pass. Double Service  
 Coupe . . . . . 1375

Enclosed Open Models  
 (With Heaters)  
 2-pass. Roadster . . . \$1190  
 5-pass. Touring . . . 1250  
 All prices f.o.b. Buick Factories  
 Government Tax to be added

### Master Sixes

Open Models  
 2-pass. Roadster . . . . \$1365  
 5-pass. Touring . . . . 1395  
 7-pass. Touring . . . . 1625  
 3-pass. Sport Roadster . . 1750  
 4-pass. Sport Touring . . 1800

Closed Models  
 5-pass. Sedan . . . . . \$2225  
 7-pass. Sedan . . . . . 2425  
 5-pass. Brougham Sedan . . 2350  
 3-pass. Country Club Special 2075  
 4-pass. Coupe . . . . . 2125  
 7-pass. Limousine . . . . 2525  
 Town Car . . . . . 2925

Enclosed Open Models  
 (With Heaters)  
 2-pass. Roadster . . . . \$1400  
 5-pass. Touring . . . . 1475  
 7-pass. Touring . . . . 1700

All prices f.o.b. Buick Factories  
 Government Tax to be added



## BURROUGHS— Profit-Building Tools for Your Office

You men who operate service garages know how impossible it is to profitably repair cars with no tools except a wrench and a screw driver. And thousands of garage men have learned that it's equally expensive folly trying to handle the figure problems of a garage with a pencil and scratch pad. In both shop and office they have found that modern equipment increases profits.

For instance, Mr. Featherston of Marshall-Featherston Motor Company, Lexington, Ky., writes:

"Our Burroughs Adding machine has been one of the most valuable office fixtures we have ever owned and we do not hesitate to say that the machine has paid for itself many times since the installation in 1917.

"Our experience has been that the machine can be applied to almost every kind of garage figure work, such as checking and extending incoming and outgoing invoices, adding cash and charge sales, balancing bank account, and proving and footing

customers' ledger. In addition to this the wide carriage on this machine enables us to make a daily distribution of sales, purchases and expenses, on a wide sheet of paper, for a comparative and permanent office record.

"We consider these records very valuable to our business, and do not hesitate to recommend a Burroughs machine of this type to any garage, large or small."

Just as Burroughs has helped Mr. Featherston—and thousands of other garage men to make more money—Burroughs will help you. Every garage man has the same problems to solve. You've got to watch the "corners" if you are going to get all the money that's coming to you.

Why not investigate? If you live in one of the more than two hundred cities where there is a Burroughs' office call us. If not your banker or phone book will give you the address of the nearest office—or if you prefer mail the coupon direct.

Burroughs Adding  
Machine Company  
6138 Second Blvd.  
Detroit, Michigan

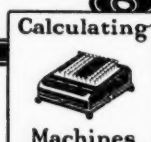
I would like to know how a Burroughs  
will help my business.

Name \_\_\_\_\_

Business \_\_\_\_\_

Address \_\_\_\_\_

# Burroughs



# MOTOR AGE

Reg. U. S. Pat. Office

Vol. XLVI

No. 7

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PAUL L. DUMAS  
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DONALD BLANCHARD, Field Editor  
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CLARENCE PHILLIPS, Chicago News Rep.

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C. A. MUSSELMAN  
President and General Manager  
A. B. SWETLAND, Vice-Pres. and Manager W. I. RALPH, Vice-President  
E. M. COREY, Treasurer  
HARRY TIPPER, Secretary E. E. HAIGHT, Western Manager  
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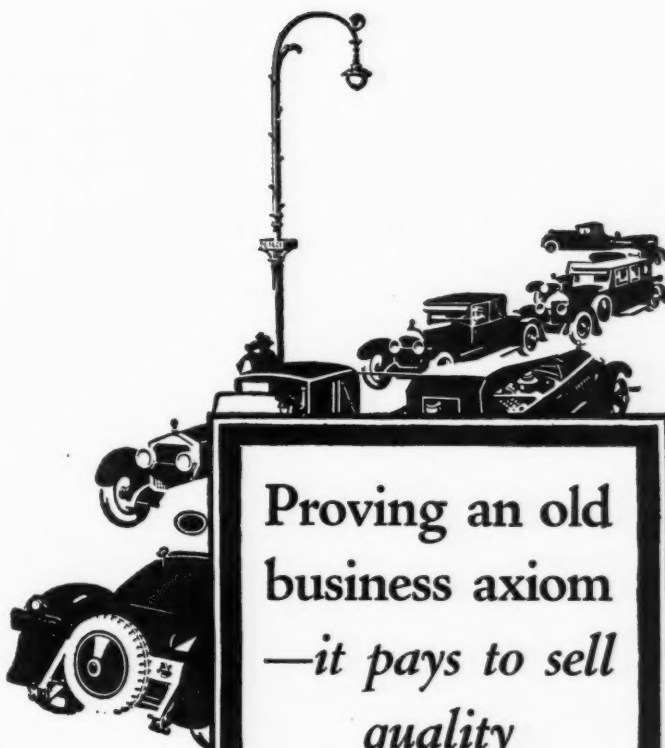
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Proving an old  
business axiom  
—it pays to sell  
quality

"For the past season  
I have been handling  
Goodrich products,  
with such satisfactory  
results that it is my  
intention next year to  
become an exclusive  
Goodrich account.

"I can certainly com-  
pliment you on the  
high quality of your  
tires and tubes, which  
is increasing my tire  
business day by day."

STONY BROOK GARAGE  
Stony Brook, N. Y.

Build with Goodrich  
for permanency

THE B. F. GOODRICH RUBBER CO.  
Akron, Ohio  
ESTABLISHED 1870

**Goodrich**  
**TIRES**

"Best in the Long Run"



**A-C BRAKES FOR FORD CARS**  
**FLOAT A FORD SHOCK ABSORBERS**  
**BRAKE SPECIALISTS**  
**RELINING WHILE YOU WAIT**

BRKES RELINED  
WHILE YOU WAIT  
A-C BRAKES  
SERVICE STATION

A-C BRAKE CO. OF N.Y.  
SALES

A-C BRAKE CO. OF N.Y.  
SERVICE

REAR AXLE  
TRANSMISSION

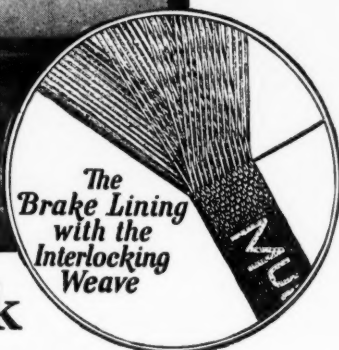
NO MORE  
BAND  
POSITIVE  
CHATEL  
STOP

BRKES INSPECTED FREE  
MULTIBESTOS  
SERVICE STATION

BRKES INSPECTED FREE  
MULTIBESTOS  
SERVICE STATION

BRKES INSPECTED FREE  
MULTIBESTOS  
SERVICE STATION

**"Customers Brake Troubles Eliminated"**



## Says A-C Brake Company of New York

"RELINING brakes is our business. We specialize in it, and from our experience with brake lining we find that Multibestos gives the kind of service that satisfies our customers.

"We eliminate our customers' brake troubles when we reline their brakes with Multibestos, for experience has taught us

that Multibestos Brake Lining is second to none manufactured.

"Our appointment as Official Brake Lining Service Station by the Bronx Automobile Club is a testimonial of the work we do and we feel that Multibestos is a big contributing factor to our success as Brake Specialists."

A-C BRAKE CO. OF N. Y.  
William Meyer

# MULTIBESTOS

## THE BRAKE LINING

### with the Interlocking Weave

MULTIBESTOS is a brake lining built for long and satisfying service. Made of purest asbestos yarn, woven by the famous Multibestos Interlocking Weave process which guarantees toughness and long life.

There is money in becoming a brake specialist and, as the above writer says, Multibestos is a big contributing factor to doing a successful business. May we send you information regarding the Multibestos time-saving Method of Relining External Brakes?

MULTIBESTOS COMPANY, Dept. MA8, Walpole, U. S. A.

NEW YORK  
105 West 63rd Street

DETROIT  
930 Taylor Avenue

CHICAGO  
1241 Michigan Avenue

NASHVILLE  
1200 Broadway

## A Three to One Chance —in favor of Studebaker!

**W**ITH three different models—and a complete range of body types for each model—the Studebaker dealer is in the best possible position to meet all seasons of the year.

When the Spring and Summer season is on there are many buyers in each of Studebaker's three markets—a threefold opportunity for profit.

When the Autumn and Winter season comes the value of a three-fold market is obvious—there are just three times the chance to make sales and profits that there would be with only one market.

Studebaker produces cars for all three markets, and each car is a price leader in its field because the factory overhead is divided over all three models and the price advantage of quantity production is multiplied by all three models.

# Studebaker

The Studebaker Corporation of America  
South Bend, Indiana

LIGHT SIX 5-Pass., 112-in. W. B., 40 H. P.	SPECIAL SIX 5-Pass., 119-in. W. B., 50 H. P.	BIG SIX 7-Pass., 126-in. W. B., 60 H. P.
Touring . . . . . \$1045	Touring . . . . . \$1425	Touring . . . . . \$1750
Roadster (3-Pass.) . . 1025	Roadster (2-Pass.) . . 1400	Speedster (5-Pass.) . 1835
Coupe-Roadster (2-Pass.) 1195	Coupe (5-Pass.) . . . 1895	Coupe (5-Pass.) . . . 2495
Coupe (5-Pass.) . . . 1395	Sedan . . . . . 1985	Sedan . . . . . 2685

All prices f. o. b. factory

THIS IS A STUDEBAKER YEAR

# STUDEBAKER





*Nash Leads the World in Motor Car Value*

## *Already New Nash Models Have Drawn 350 Applications for Franchise*

July 30 Nash showrooms throughout the country held a special pre-public showing of the new Nash Advanced Six and Special Six series for Nash owners and dealers in other lines.

July 31 there were received at the factory more than 40 requests for contract and territory information from dealers now operating under other contracts.

By August 1 the applications had risen to 125.

And at this writing the list of requests has pushed well past the 350 mark—and they're still coming.

The great crowds which thronged Nash showrooms July 31 at the first public showing demonstrated decisively the overwhelming national eagerness to see C. W. Nash's two new series of Sixes.

And the figures cited above provide equally conclusive evidence of the remarkable impression these new cars have made upon the automobile dealer body of the United States.

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# NASH

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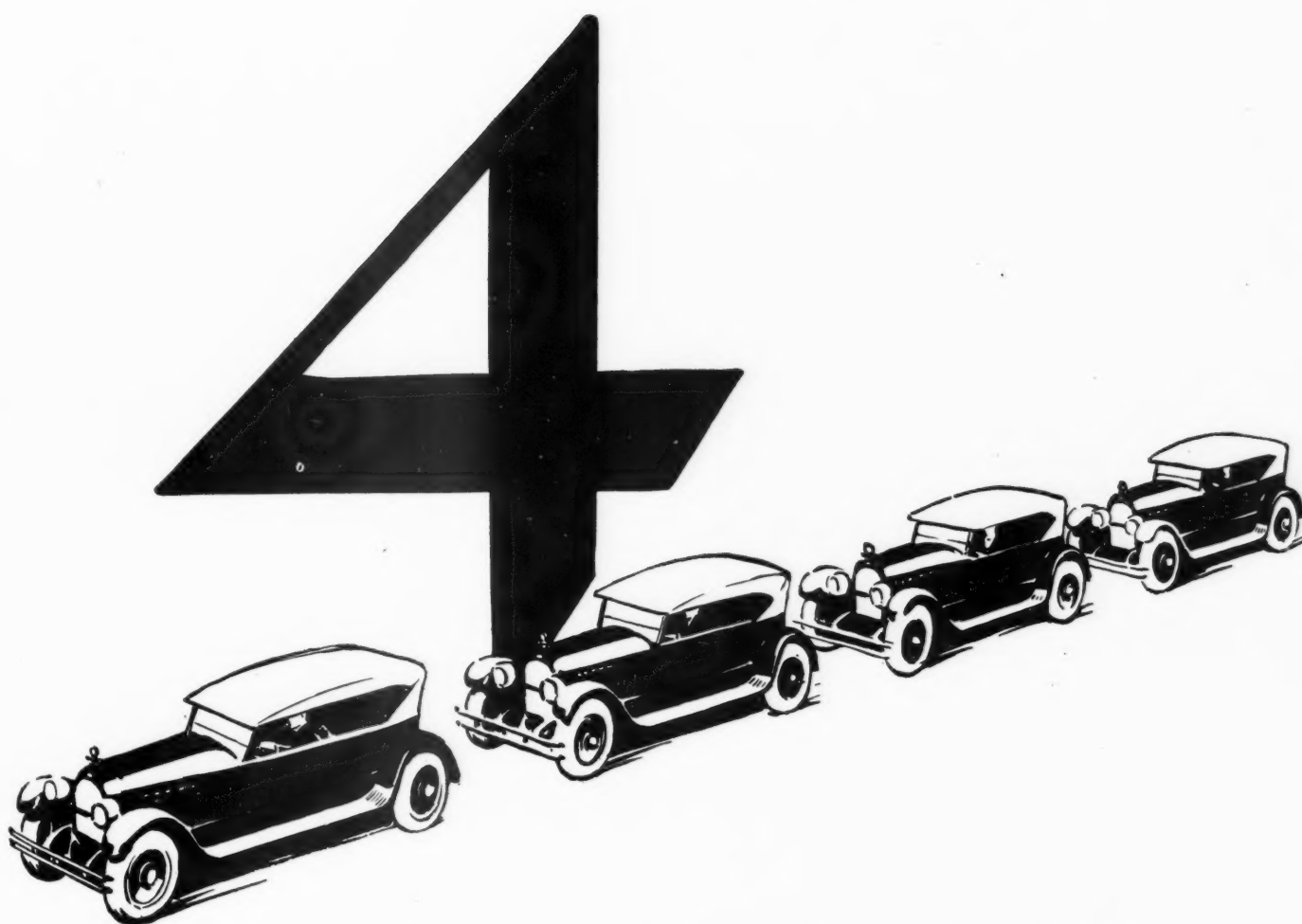
THE NASH MOTORS COMPANY  
KENOSHA, WISCONSIN, U. S. A.

*Nash Leads the World in Motor Car Value*

(455)







## Four Marmons in One Week in City of 30,000

While the big cities are taking increasing numbers of Marmon cars, it is in the smaller communities that we find one of the healthiest signs of Marmon progress.

For example, in Nashua, N. H., a city of approximately 30,000, Fred A. Smith, a salesman for the Pollard Automobile Company recently sold four Marmon cars in one week.

The rapidly broadening market for the Marmon car is, in fact, one of the high lights of the motor car business.

The dealer with his ear to the ground has never before looked with so much favor on the Marmon franchise.

NORDYKE & MARMON COMPANY, Indianapolis, Ind.

*Established 1851*

# MARMON



# The Good MAXWELL

## Increasing Leadership

Every passing month strengthens the leadership of the good Maxwell and the Chrysler Six.

Faster and faster the conviction is spreading that the good Maxwell and the Chrysler Six offer to dealers every needed element for permanent and increasing success.

New and dramatic interest is being aroused in the good Maxwell by Walter P. Chrysler's public announcements regarding Maxwell's goodness and value.

All the prestige of his name is now as definitely centered behind the good Maxwell as behind the Chrysler Six.

The result is a literal flood of new business—and a great increase in franchise applications from seasoned dealers, who were quick to catch the significance of Walter P. Chrysler's announcements.

The Chrysler Six is, today, the marvel of the industry not only because of its mechanical superiorities, but also be-

cause of the tremendous public interest it continues to arouse.

In addition to the great features of the cars themselves; in addition to their growing sales, there is the further attraction of an unusually helpful factory policy.

Maxwell-Chrysler is definitely committed to the policy that its dealers must make money. The impelling motive is always one of mutual helpfulness—and the policy is administered by men who themselves have

been dealers, and who know definitely what dealers need and want.

A typical example is the Maxwell's Guaranteed Flat Rate Service System, which operates to keep owners' costs down and dealers' profits up. This system is already the model for many others—and has the support of all in the industry.

Write or wire now for full details—which will be given promptly.



*All Maxwell and Chrysler dealers are in position to extend the convenience of time-payments, on a plan that is attractive to the buyer.*

MAXWELL MOTOR SALES CORPORATION, DETROIT, MICHIGAN  
CHRYSLER MOTOR CORPORATION, DETROIT, MICHIGAN  
MAXWELL-CHRYSLER MOTOR COMPANY OF CANADA, LTD. WINDSOR, ONT.

# The Chrysler Six

*Pronounced as though spelled, Crý-sler*

# MOTOR AGE

## THE GOLDEN GRAIN TWINS



**T**HESE are the Golden Grain Twins. They are so happy because they are going shopping. They haven't made up their minds just what all they will buy, but they have already decided that automobiles must come first. Corn has been heard to remark that he likes the new Line Nine and Wheat has spent a lot of time looking at the latest Triple Four. It is reported that they are seriously considering keeping their old cars and having them fixed up for utility purposes around the farm. Their ability to buy is discussed on the following pages.



# Corn and Wheat Lead the Way to Greater Automotive Sales

*Prosperity That Comes With Higher Prices for Grains, Cotton and Other Farm Products Opens Way for Dealer to Build Up Business*

By SAM SHELTON

**V**ARIOUS estimates of our increased agricultural wealth have been made in the last few weeks. It has been reported that price advances in the grain and live stock markets have added more than \$1,000,000,000 to the cash assets of the farmers of the United States.

The exact accuracy of these estimates is not material to the automotive merchants. The important fact is that every bushel of wheat and corn that every farmer has to sell is worth more than a year ago, or six or three months ago. This means that actual dollars are put into the pocketbook of the farmer to be expended as he sees fit.

To the manufacturer and the national sales organization the totals are eloquent with opportunity for expansion. To the retail automotive establishment whose territory is naturally limited to its own locality the totals merely serve as an indication of the nation's prosperity, to be reflected in the buying attitude of its prospective customers.

## *Farmers Getting More for Products*

Thirty cents more for a bushel of wheat than it was worth last year means something to the individual automotive merchant. A bushel of corn that brings 30 or 35 cents more this year than last is a real stimulator of trade. And when hogs are worth in actual cash 30 per cent more than three months ago the farmer's cycle of prosperity is about complete.

After several months of being closed tight the farmer's purse is being opened. It is being opened for the purpose of putting into it some of the coin for lack of which it has grown thin. But once opened and well filled it stirs

in its owner's heart the desire to buy—and no where is there a more stirring purchase incentive than that exercised by the automobile and its allied products.

The automobile dealer's position is tactically as favorable as it ever was. He handles a line of merchandise for which human desire grows stronger rather than weaker. Whether he sells new cars or sells maintenance service on old cars he has a product that is in demand. And the demand is limited only by the power to buy.

The power to buy is what we are concerned with in this brief article. No statistician or group of statisticians can accurately define the power to buy in such a way as to apply to all sections of the country. One section of the country may have a good wheat crop but a poor corn crop. Another may reap little of either of these grains, but may find its prosperity in cotton or fruit or vegetables. But wheat and corn are so widely produced throughout the United States that not many sections fail to be affected by them.

These grains and cotton constitute the big crops of the country. When there is a fair yield of all three at good prices there is released a flow of money from the centers of population to the farms with a resulting circulation that creates wholesome financial conditions. Buying and selling are bound to follow such conditions.

Just what the conditions are in his own locality the merchant can best judge for himself. If he is a good merchant he will ascertain by investigation and observation just what is the condition of the crops upon which the majority of people in that territory depend for ready cash. The local merchant has the advantage of knowing what local conditions may aid or harm the farmers' crops. Having an accurate picture of the local prospects, he can then apply the national factor, which is price, and ascertain surprisingly well what his outlook will be for sales.

## *Building Up Bank Balances*

The market price for grain and other farm products as quoted in the large cities like Chicago, St. Louis and Kansas City reaches from coast to coast and into the smallest hamlet. The local price will be based pretty accurately on the central market price with due allowance for transportation charges.

A comparison of the prices now being paid for the farmer's grain and other products with the market quotations of a year ago, or six months ago, reveals just how materially the agricultural section of the country has advanced in the building up of its bank balance.

Recent cash prices for wheat on the Chicago market have been around \$1.25 to \$1.30. Future wheat for December has been quoted at near \$1.50 a bushel. Some traders predict a rise to \$2 within a few weeks. Regardless of what the future may bring, the present cash price

## 15 YEARS OF SELLING AUTOMOBILES

*Interesting experiences of an Old-Timer who traces changes in sales methods from the early days down to the present.*

In Next Week's MOTOR AGE

is an increase of about 30 cents over what wheat was selling for a year ago. It happens also in this case to be a gain of approximately 30 per cent. Most of the increase has taken place within the last few months and it has been so pronounced that one can fairly say that millions of dollars of new wealth has been created.

The yield of wheat promises to be slightly more than that of last year. The production for 1923 was about 786,000,000 bushels. A late Government estimate forecasts a yield of approximately 814,000,000 bushels this year. At an average increase of 30 cents a bushel this will bring the farmers something like \$244,000,000 more than it would have brought at last year's prices.

#### Corn in Upward Trend

Corn also has participated in the upward trend to an extent slightly more pronounced than that of wheat and thus contributes its share to the greater buying power ready to be directed toward the automotive merchant's wares. The market for corn is around \$1.10 to \$1.15 today whereas it was in the neighborhood of 75 cents a year ago. Here there is promise of a smaller yield than that of last year. The production last year was about 3,054,000 bushels. Late estimates forecast about 3,576,000 bushels for the year.

The estimated yield is something like 17 per cent less than that of last year, but the prevailing price is 40 to 50 per cent greater.

The farmer's favorite means of marketing corn, which is in the form of fat hogs, is keeping pace with the trend and showing steadily advancing possibilities. From \$6 to \$7 a hundred pounds a few months ago hogs have gone up to \$10 or more. Secretary of Agriculture Wallace recently commented on this situation.

"That factor is doing more than anything else to pull the farmer through in good shape this year," he said. "I know some say the high corn prices mean little to the farmer because he has not much corn to sell, but the farmer does have corn—in his hogs—and he will market at an advantage of around 30 per cent over prices of two months ago. This will not be confined to one section, but will help farmers generally."

Secretary Wallace pointed out that the increase return on shipments of hogs for one week in July amounted to

between \$3,000,000 and \$4,000,000 and on this basis he estimated that the rise would add several hundred million dollars to the value of the hogs to be marketed this fall.

The cotton crop, which of course belongs to the South, holds an even more optimistic outlook for the future. A yield is predicted of approximately 12,000,000 bales as compared with last year's yield of 10,128,000 bales and the price now is around 28 cents a pound as compared with 23 cents last year.

Just how is the automotive merchant to profit by these conditions?

It is natural to presume that when there is a general increase in the circulation of wealth there will be a more or less general sharing of it among all trades and all classes of people. But the merchant who merely sits still and waits for his share to come to him will certainly be disappointed. People with plenty of cash are ready to buy, but it is also true that when they have felt the pinch of hard times for some years, as our farmers have, they will exercise great caution in their buying. They will do a lot of looking around and the merchant who handles one line of cars may be sure that they are going to see what his competitor has to offer. The families that are the beneficiaries of the rise in wheat, corn and cotton and other agricultural products, are even now observing the cars they meet on the road, studying the advertisements in newspapers, magazines and on billboards, and comparing in their minds the merits and demerits of various cars they know about, attempting to decide either consciously or subconsciously what kind of car they will buy the next time. They may not have decided definitely just when they will buy the car, but the purpose exists in the back of their minds. It is the dealers opportunity to begin working a fertile field.

#### Sales Opportunity Presented

The sales opportunity presented is not confined to new cars. Just as there will be a class of buyers seeking new vehicles there will also be a group in the market for used cars. Others will seek overhaul and maintenance jobs to put the old car in first class condition. The retailer of accessories and extra equipment also will find a greater market opened up to him.

Thus corn and wheat lead the way to greater sales for the automotive merchant.

## Service Department Dealer's Big Asset

(From *Dealers' Doings of Syracuse, N. Y.*  
*Automobile Dealers' Assn.*.)

IT has often been said that the service department is a real liability to dealers. That the profits taken in at the front door go out of the back door—that the service department always operates at a loss.

If you are one who operates the service end of your business without profit you are erring seriously and should start immediately to build up a service department that will net you a substantial profit.

Pause and analyze just what results you are getting from your shop. First—have you given pointed instructions to the man in charge? Do you as a business man, know what profit you should have from your shop investment, and have you passed the word to your service manager with implicit instructions so he

will know exactly what is required of him?

If you have five hundred owners in this city operating your cars you should make net on each car from \$10.00 to \$100.00 annually. This is not a big amount, but it means from \$5,000 to \$50,000. It is worth going after.

The small outside shop exists because you have penalized this important part of your business for new car sales.

If your service department is properly equipped and intelligently operated to specially service your cars, which it should be, your owners will get better service from you than from small outside shops, and they will follow their natural inclination to go to the man they had confidence in to buy a car from.

When you sell a man a car you start

out with his confidence, and if you lose that confidence by the unbusinesslike methods of your service department you have turned a booster into a knocker and the outside shops get benefits and profits that should be yours.

Make your investment in your shop pay you a profit and start right now when sales are slow.

Do not neglect the clean money you can make on accessories and supplies. Display them to attract attention.

Every time an owner goes into your place you can sell him something he needs and constantly buys elsewhere, even if it's only a can of grease, or a cake of hand soap. Get him into the habit of coming to you for everything and you are giving him real service, and at a profit to yourself.



# Making Service Satisfy the Owner

*How the Walter F. Wright Co. of Cleveland Reaps a Profit from the Department and Boosts New Car Sales*

FOR eight months after the Walter F. Wright Co. took up motor car distribution in the Cleveland districts, the service department lost money steadily. Then the volume of business in the course of a little over a year doubled, and it has been going forward steadily since. Today the service department yields a handsome profit to the Walter F. Wright Co., while along with this building up of the service department came an increase in sales of 377 per cent in 1923 over 1922, while sales this year are running 45 per cent in excess of last year. This company recently took over the distribution of Maxwell and Chrysler cars.

Mr. Wright not only pulled his service department out of a hole and a rut, but in doing so he demonstrated that service of the right sort will help sales materially. In fact, he says that the service department and the manner in which it is operated, has proven one of the very strongest factors in building up his sales.

## Offers Something Distinctive

How did Mr. Wright accomplish this?

Great credit for the accomplishment he gives to the fact that he offered something distinctive. And there is a distinctiveness all through the Wright business policies. He is a great believer in the idea that a business to be successful must have character, just as an individual to succeed must have character. Mr. Wright prides himself that his business has character as well as distinctiveness. The trade mark that he puts on his tire covers, for instance, is an artistic creation; something that enhances the appearance of the rear of the car.

One of the highest priced artists in Cleveland spent considerable time devising the trade mark, and then the Wright organization spent some time studying it for further enhancement of the appearance.

Character, Mr. Wright says, is founded on honesty, sobriety, intelligence, and reliability, and he put these principles into his business in order to build character for it.

## Money Cheerfully Refunded

One of his means for establishing goodwill through reliability is his policy of refunding money paid by service customers who are dissatisfied with the work done. Of course, Mr. Wright insists that every service job must go out perfect, but he went one step further and decided that he would refund in case of dissatisfaction. The first patron who got his money back was astounded. He must have gone away and told all his friends about the fine treatment he got at

Wright's, for many persons who brought their cars into the Wright service department reported what fine treatment the former patron got, and they said they were coming in for the same sort of deal.

Sober statements are enjoined upon salesmen of service, and by that is meant conservative and truthful statements. This is regarded as the strongest kind of business character building. What has been said concerns merely general policies and ideas of Mr. Wright's. Here are some concrete steps that he took to pull his service department out of the rut:

The very first thing that he did was to stop complaints being made about the cars that he sold. Mr. Wright argued that if he could do this his biggest problem was solved. Here is what he did to stop complaints:

He first devised a thorough and comprehensive system for keeping in touch with his customers. When they brought their cars into his service department, had a repair made and paid their money, they were given a card along with the receipted bill. This card reads, "Our ambition is to satisfy our customers, to gain new customers, and to inspire confidence. We are human, sometimes get too busy, overlook details. So do all of us. But, if you are not impressed with our service tell me before you tell your friend. I'm entitled to personally hear your comments, good or bad, entitled to a chance to satisfy you. That is fair."

## Customer Gets a Postal Card

Thirty days after the car has been taken from the service department, Mr. Wright follows with a return postal card, which reads:

"I note from our records that you had your car in our Service Station a few days ago. You must realize that even with the most thorough supervision there will be times when inefficiency will arise; but we want you to tell us of that inefficiency so we may have the opportunity to satisfy you. We aim to render as nearly 100 per cent service as is humanly possible.

"Good or bad I would appreciate your opinion of our service on the attached. Please do not feel that this is a routine matter as these cards come directly to me. Only through you can we keep a proper check and maintain the right quality of service.

"Anticipating your cooperation, I am,  
"Very truly yours."

About the time that the favorable impression created by this first card wears off, and provided the car has not been returned for inspection, Mr. Wright sends out another card, which reads:

"We note from our records that you

have not had your car in our service station recently, and we therefore assume that it is in good condition and operating to your entire satisfaction.

"However, there may be some minor adjustments necessary of which you are not fully aware and we will gladly make a thorough inspection of your car gratis if you will drive in. Please bring this card with you."

That not only rekindles the old favorable impression of the company but strengthens the bond between Mr. Wright and the owner. This brings in a large number of cars each month, and as a hot weather, dry season business producer it is O. K.

## Keep Track of Hard Drivers

Finally as a last resort, the telephone is used on car owners whose cars have been running for long periods without inspections. The company gets to know the careless and hard drivers, and it is remarkable what results can be obtained toward stopping complaints by getting these people in every so often.

If a car owner comes into the service department for a particular repair, the workman not only takes care of that repair, but as the next step toward stopping complaints before the cause arises, they give the car a thorough inspection. If anything else is wrong, they notify the owner.

If you think that all of this trouble and detail work does not pay, your mind will be disabused by going into the sales room and examining a big bound volume containing several thousand letters received from customers. They come in voluntarily. They are not solicited.

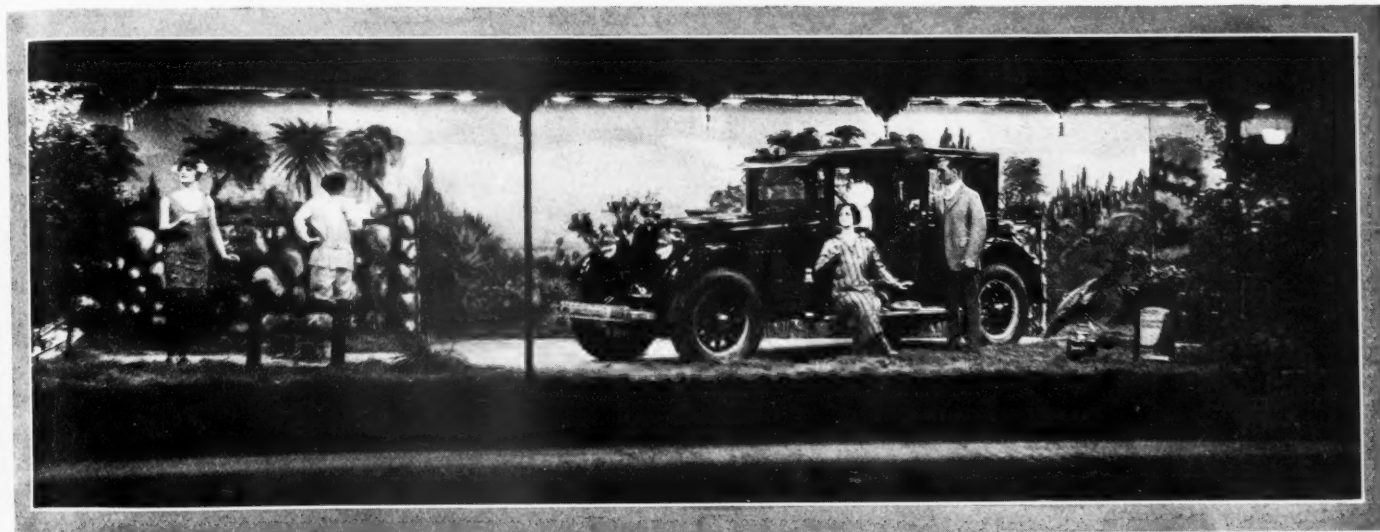
The final effort to eliminate complaints is taken by the salesmen. When they talk new car to an owner and are met with a complaint about the car they have, they take down that owner's objection, with certain details. That record is forwarded to the company.

Back of all these efforts to eliminate complaints is the head of the organization, Walter F. Wright. He gives these matters his personal attention. A dissatisfied customer is regarded by Mr. Wright as one of the most important of all the problems that need the personal attention of the head of the organization. The customer gets a feeling of satisfaction when the president of the company handles his complaint that he does not feel when a subordinate takes care of the matter.

The company schools every member of its organization in its methods and impresses each with the necessity of being courteous and a gentleman.



## This Display Sold Five Cars



*A San Antonio department store used this motor car display as summer outing suggestion*

### Automobile Exhibited in Department Store Window Was Determined by Drawing

**A**N automobile outing display which was shown for a week in the show window of a department store at San Antonio, Tex., resulted in the sale of five cars by the Crockett Automobile Co., retail representative of the make of car used. The dealer reported the sale of a second car to one buyer whose original purchase was influenced by the window display.

To see cars packed in automobile selling company windows is not startling, but to see them displayed in department stores is a little out of the ordinary. Perhaps that is the reason why the window in question was such a success. There is another reason, too. An inspection of the picture, reproduced here, will show that the window was very carefully gotten up.

When the Joske Bros. Co. decided to use a car in their windows to help boost the sale of summer clothing for men and women, they put the matter of the selection of the car up to the San Antonio Automobile Association. The association decided that it would be fair to leave the matter to a drawing, with the result the Crockett Automobile Co., agents for the Hudson, secured the right of furnishing the car for the display.

### New Marmon Plan

H. H. Brooks, sales manager, Nordyke & Marmon Co., Indianapolis has adopted an interesting plan to further increase sales and to keep up the spirit of his sales organization.

It is the belief of Mr. Brooks that success in selling comes only when the salesman has a pre-arranged plan of action and rigidly adheres to that plan.

"To many salesmen depend on the day's developments, they rely too much on the exigencies of the moment. When this is done they are trusting to luck and luck is not going to put us at the top of the sales ladder," says Mr. Brooks.

The plan of action which Mr. Brooks has adopted for his salesmen is as follows:

1. Work daily to a pre-arranged task. This means that your day's work must be systematically planned.

2. Call on certain number of live prospects daily, these to be determined by an analysis of previous work.

3. Know beforehand just why you are calling on these prospects and your method of attack. Know to which of these you are to give demonstrations.

4. Call on a pre-arranged number of potential buyers. Designate these by name before you start on your day's work. Many hours of otherwise lost time can be employed in this manner.

5. Determine to make a definite number of demonstrations per week and make them.

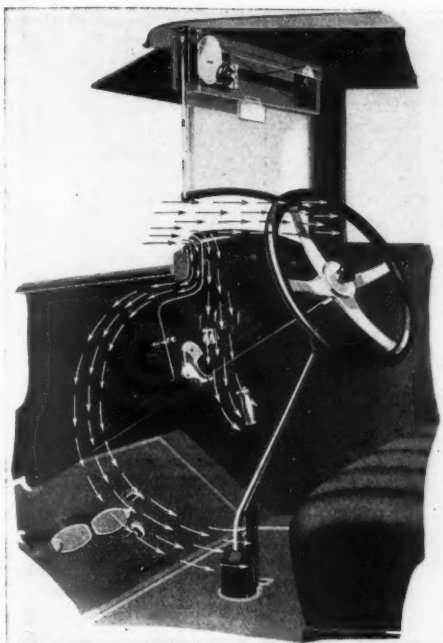
6. Know how many people you are going to call on, who they are, why you are calling, and keep at it until the job is complete.

Mr. Brooks pointed out that this plan of action, of course, is not the only factor entering into successful automobile selling, but he says that if a salesman plans his work and sticks to that plan until it has been successfully concluded, he has realized the most important foundation of securing increased sales.

### CANADA AS CAR BUILDER

OSHAWA, Ont., Aug. 13.—"Canada as a Builder of Motor Cars" is the title of a 56-page booklet published by General Motors of Canada, Ltd. Among the items of interest is the fact that in 1923 General Motors built in Canada more than 50,000 cars. Of these 27,000 were exported, helping to swing the balance of trade Canada's way. Four thousand Canadians were employed and the annual payroll exceeded \$6,000,000. The railways received \$3,350,000 in freight charges. Fifty carloads of General Motors freight came into and went out of Oshawa every working day.

### Explaining Action of New Fisher Windshield



*This illustration shows clearly the ventilating action of the new windshield recently brought out by the Fisher Body Corp. and described in a recent issue of Motor Age. The arrows show how the air enters and how some of it is deflected downwards into the lower part of the driving compartment.*

## Davis Announces New 1925 Models

IMPROVED body lines, Dual-Tone finishes, and Lockheed hydraulic four-wheel brakes as standard equipment, are outstanding features of the Davis motor cars for 1925, which have just been announced by the George W. Davis Motor Car Company, Richmond, Indiana. The Davis Company is now making shipments on the new 1925 models.

All models can be in dual-tone combinations of either green or gray, at the option of the buyer.

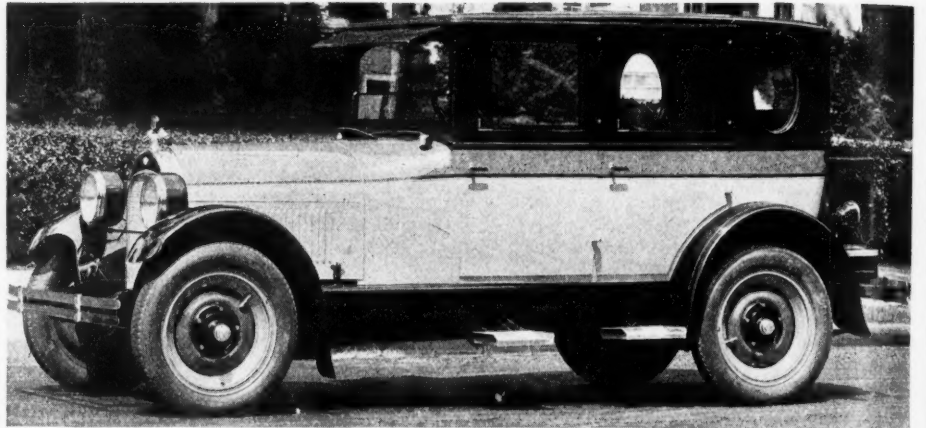
Lockheed hydraulic four-wheel brakes are now standard equipment at no added cost, it is announced. For the past year, these brakes have been optional equipment on the Davis at additional cost. The brakes are of the external contracting type, operating on 12-in. drums, both front and rear.

The Ross cam and lever steering gear has been adopted as equipment throughout the Davis line.

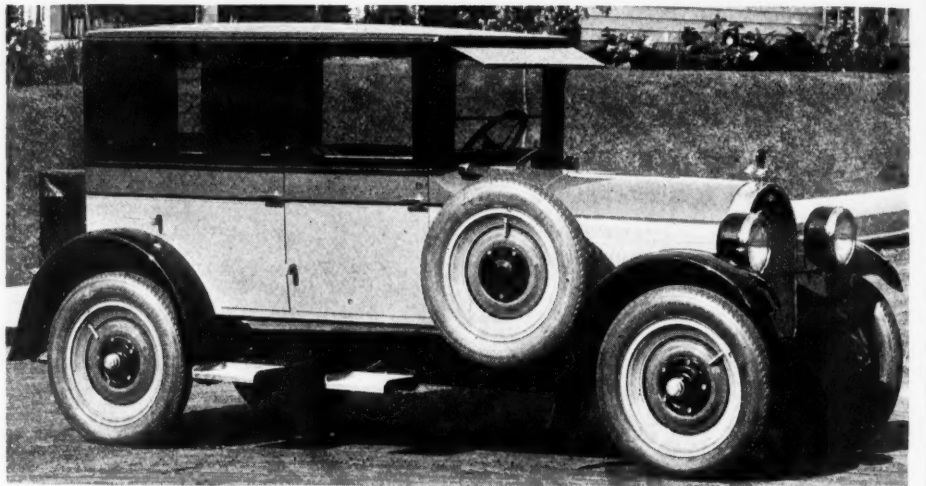
The Davis 1925 models include two series, the Series 90 a light six, with a wheelbase of 115 in., and the Mountaineer, Series 91, a larger and more powerful car, built on a wheelbase of 118 in. The Series 90 is powered by the 7-U Continental engine, while the 8-R Continental engine is used in the larger series.

The Series 90 models include the phaeton, a five-passenger touring car; the Legionaire, a four-passenger sport model, the Man o'War, a three-passenger roadster, with room for two additional passengers in a jump-seat; the utility brougham, a three-door, five-passenger enclosed car; the sedan and the Berline sedan.

The Mountaineer, Series 91, includes the phaeton, a five-passenger, completely



*This is the Davis 1925 Series 90 Berline sedan which sells for \$1,995*



*The 1925 Davis Series 90 Utility Brougham, which sells for \$1,595*

equipped touring car; the roadster; the utility brougham; the sedan and the Ber-

line sedan. Balloon tires are optional on all models at extra cost.

## Several Minor Changes in Ford Piston and Camshaft—New Coil Box on Fordson Tractor

Minor changes in the pistons and camshaft of the Model T engine have been announced by the Ford Motor Co. The new piston, known as the Light Design, is being used in both production and service. It differs from the old type by having thinner side walls and smaller bosses and holes for piston pin bushings. It can be distinguished from the former part by a small flange extending around the inside bottom edge of the skirt. The change in design reduces the weight of the piston to about 1¼ lbs. To meet service requirements the piston is furnished in standard and four over-sizes as follows: .0025, .005, .031, .033 in.

In order to provide service dealers will have to carry the old and new type pistons and piston pin bushings. This is made necessary by the fact that where the replacement of but one piston is necessary, it will be necessary to supply the old type to maintain proper balance. Where a new set of pistons is installed, the Light Design parts may be used.

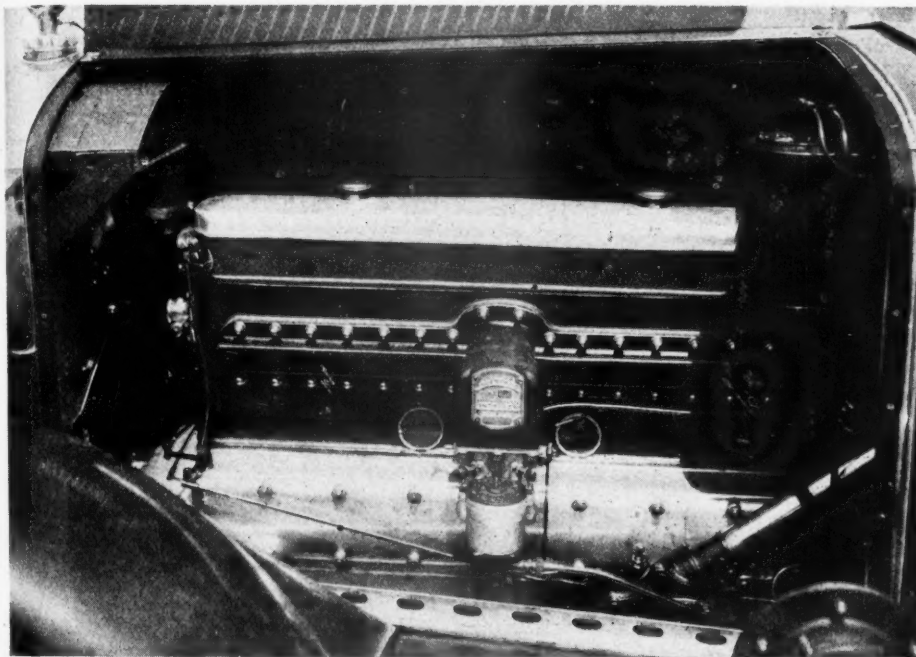
On the camshaft, the length of the No. 1 exhaust cam has been increased from ⅞ to 1⅛ in. and the front camshaft bearing has been reduced in proportion. The new bearing differs from the old in that the notch and 30 deg. chamfer on the rear end of the latter has been eliminated.

Due to the decreased distance between No. 1 cam and the flange on the new type shaft, when selling a camshaft front bearing, it will be necessary to ascertain whether the car in which it is to be installed is equipped with the old or new type camshaft. The old style camshaft will be discontinued as soon as present service stocks are exhausted.

A new design of dust and waterproof coil box and cover has been adopted as regular equipment on the Fordson tractor. Both bottom and back of the new box are made of reinforced heavy rubber, while all joints have been made tight by means of felt packing and the use of a cork gasket between the cover and box. Improved type spring latches hold the cover tightly in place. New type hold down springs are provided in the coil box cover which hold the coil tightly against the box contacts. To prevent water reaching the terminals, a trough is located at the back of the coil box cover.



# Frontenac Straight Eight Fitted With Burt Single Sleeve Valve Engine



Carburetor side of new Frontenac Straight Eight Burt Single Sleeve Valve engine. Note clean cut appearance with all wiring concealed under removable engine cover, and with water-jacket manifold with integral stove. Plates at bottom give access to valve shaft and cross shafts of sleeve valves. Note firm mounting and supports for extra reservoir of water at top rear of radiator. Generator and starter are mounted side by side on transmission, accessible through floor boards of front compartment



The Frontenac Straight Eight, which is fitted with the Burt single sleeve valve engine. The car has a 140 in. wheelbase and weighs about 4600 lbs.

ONE of the latest additions to the field of eight-in-line engine motor cars is the Frontenac Straight Eight, which is powered with the Burt single sleeve valve engine on which the Frontenac Motors Corp. of Indianapolis, holds patent right for America for the eight cylinder engine. Louis Chevrolet, veteran race driver is vice-president and chief engineer of the corporation.

A checking of the specifications of the new car shows it to be equipped with an eight-cylinder engine the cylinders of which have a bore and stroke of 3 3/8 by 5 in., giving an N. A. C. C. rating of 36.45 hp. The engine actually develops over

80 hp. at 2600 r.p.m. There are nine main bearings in the crankshaft and the valve operating shaft also has nine bearings. The engine is lubricated by a force-feed system throughout.

In this engine the single sleeves are operated by a short cross shaft consisting of a disk with an eccentric pin driven by skew gears from the valve shaft. As these disks are rotated by the valve shaft the eccentric pins impart to the sleeves a combined vertical and horizontal travel, as the universal joints allow the sleeves freedom to partially rotate on their axis. There are two inlet and one exhaust opening in the sleeves and in the oscil-

lating elliptical travel the sleeves travel in the same direction as the pistons on the compression and firing strokes. This is said to materially reduce friction and wear.

The engine is cooled by thermosyphonic action and ignition is taken care of by a Delco system, the latter also being used for starting and lighting. The clutch is a double dry disk type. The drive is through a three-speed geaset to a full-floating rear axle. The frame is made with 8-in. side rails and mounted on semi-elliptic springs, front and rear. The car has a wheelbase of 140 in. The wheels are wood, wire or disk, as desired and are fitted with 35 by 5 in. cord tires, or balloons. Lockheed hydraulic four-wheel brakes are fitted, the emergency brake being mounted on the transmission.

The car is completely equipped and has many novel features, especially as regards the lighting equipment.

## Valentine to Market Nitrocellulose Automobile Finishes

Valentine & Co., well known in the automotive industry for the production of automobile finishing materials, Valspar varnishes and enamels, have just added to this line a new group of nitrocellulose finishing materials to be known under the trade name of Valenite. The system uses pyroxylin base materials from primer to finishing enamel. Seven coats are contemplated in production work and it is possible to apply the entire seven coats without artificial drying, in two days.

The final finish is egg shell but this can be polished to a luster or finished with two coats of highly elastic finishing varnish. The Valenite finish is said to be very durable and capable of withstanding two years severe service or five years average service of 5000 miles a year.

All the materials are prepared for spraying and are especially suitable for production work. Manufacture has been started in a new plant in Kearny, N. J. and deliveries will be started in time for Fall production.

## WANT SANE HEADLIGHTS

TORONTO, Ont., Aug. 13.—Two officials of the department are co-operating with the Eastern Traffic Officers Association, which includes representatives of the Province of Ontario, Quebec and some 17 American states, trying to perfect a safe and sane system of headlights, according to the announcement made recently by S. L. Squires, deputy minister of highways for the Province of Ontario. "Motorists are all agreed that dazzling headlights are a peril," he said.



## Gardner 1925 Line Includes Twelve Body Styles on Standard Chassis

**G**ARDNER 1925 styles have been announced by The Gardner Motor Co., Inc., St. Louis, and shipments are now being made to dealers and distributors.

The complete Gardner line now includes twelve open and enclosed body styles—5-passenger touring, 5-passenger tour de luxe, radio special touring, 2-door, 5-passenger coupe, touring A, special touring, radio special sedan, 5-passenger sedan, radio special roadster, all-season touring, all-season roadster and standard roadster.

While there have been no drastic changes in any of the models many special features have been incorporated which add to beauty, convenience and comfort. Tour de Luxe, for example, is finished in Crane-Simplex body color, and balloon tires and steel wheel equipment are standard. Balloon tires and steel wheels are also standard equipment on the radio special sedan—on all other models, balloon tires and steel wheel equipment are optional.

The new 2-door 5-passenger coupe is finished in a rich blue body color, and standard equipment includes cowl lamps, motometer, dome light, rear vision mirror, etc. The whole interior, including the door panels, is done in velvet velour. Ample ventilation is assured by a ventilator in the cowl, two-piece weather-proof windshield, and rotary window lifts.

The special touring is finished in egg-shell gray Duco body finish, and is upholstered in genuine black leather. Cowl lamps, motometer, trunk rails, nicked step and scuff plates and wood wheels are standard.

Touring A, a five-passenger car, is available with either backed black enamel or Crane-Simplex body finish, and with spare tire and tube, nicked double-barred front bumper and aluminum trunk rails as standard equipment.

### TEST OIL-BURNING ENGINE

MONTREAL, Aug. 13.—Burning crude oil, costing about seven cents a gallon at retail, and yielding about double the number of miles a gallon obtained from a gasoline motor engine of equal size, the Attendu engine, product of the Eastern Engineering Co., Montreal, is at present propelling an automobile on Montreal streets.

The operation of the engine was demonstrated for the benefit of the newspaper men and others by Andre C. Attendu, the inventor. It was a non-technical demonstration for the purpose of satisfying curiosity that had been expressed. Controlled much in the same manner as the ordinary motor, Mr. Attendu's engine behaves well on the road, negotiating steep grades with facility. The engine is developing 73 horsepower, which is 15 or 20 horsepower more than had been expected of it.

This particular engine was built to

prove Mr. Attendu's principle rather than to go into an automobile, and in this light its performance is decidedly impressive.

The chief remaining problem is the elimination of smoke from the exhaust, of which there is still considerable. Mr. Attendu, however, has made good progress in its elimination and the matter is regarded by engineers as a relatively minor one. Diesel engines having been brought long since to a point where they have a clear exhaust. The chief advantage claimed for the engine, of course, is that it can be produced as cheaply as the ordinary gasoline engine and can be operated at one-tenth of the cost.

### Shopmen Build Novel Valve Grinding Machine

Using chiefly the salvaged parts of old motor cars, two employees of the Southwest Nash Motor Car Co., St. Louis, Mo., have built a machine for grinding valves whereby it is possible to grind twelve valves at one time and turn the job out in something like 3 to 5 minutes. The company states that a much more uniform job is assured with the machine than is possible with other methods. The machine can grind 600 valves in a day. It has been in operation in the shop of the Southwest Nash Company for some time and has demonstrated its efficiency.

George F. Heublein, forman and H. A. Nippert, electrician of the company are the inventors and builders of the machine.

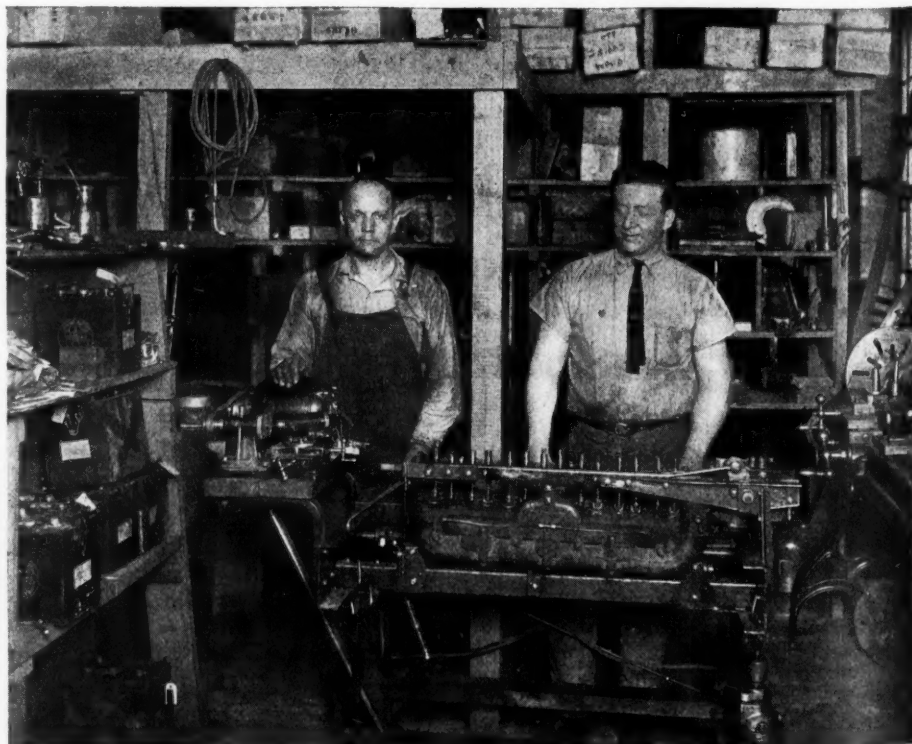
### War Boosted Popularity of U. S. Motor Cars in Belgium

WASHINGTON, Aug. 13.—How the World War has increased the use of motor vehicles in Belgium, at the same time uprooting the deep seated prejudice against American automobiles until they are now just as favored as European cars is confided to the Automotive Division of the Commerce Department by Consul George S. Messersmith at Antwerp.

"The increased use of motor vehicles is one of the striking changes brought about in Belgium since the war," the dispatch continues. "Prior to that time, automobiles were considered a luxury and their use was confined entirely to the wealthy class.

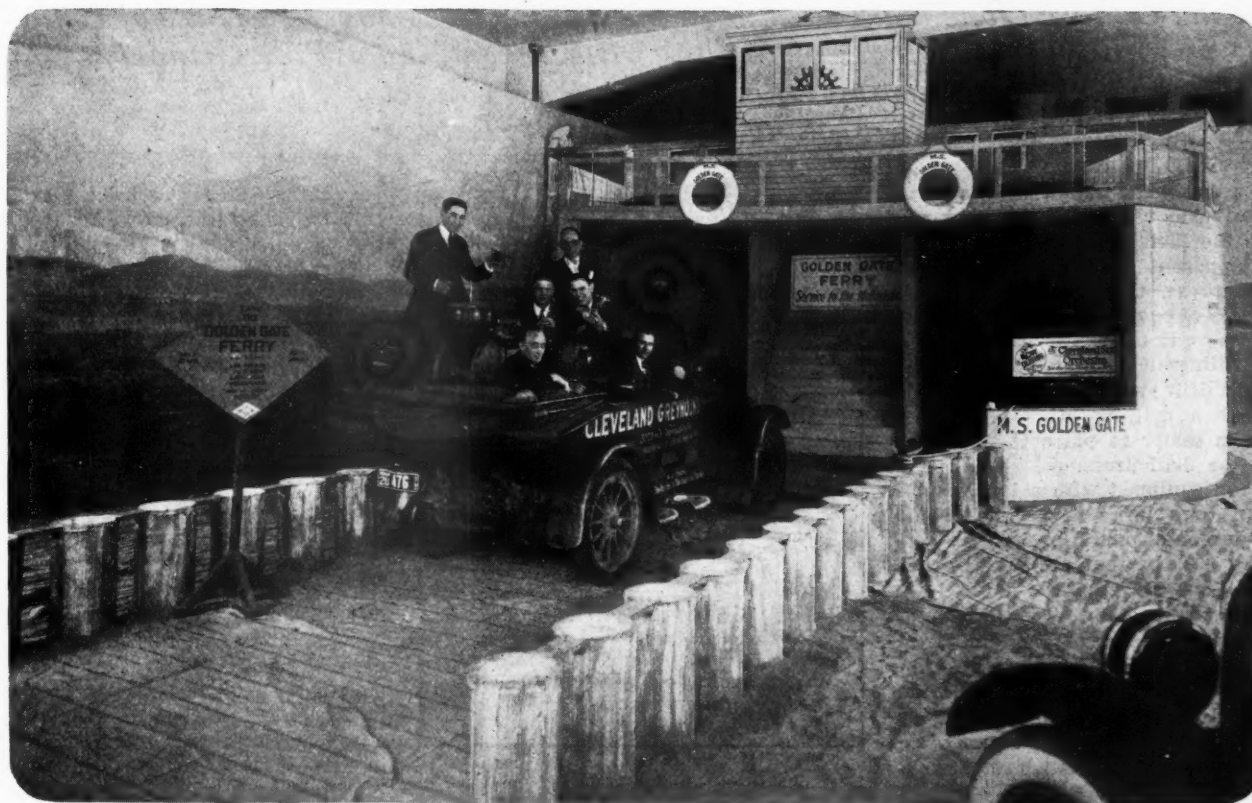
"The extraordinary work done by a moderately high priced American car, largely used by the American Army during its operations in Europe attracted the attention of the Belgians as well as of others serving in the Allied armies and it was in great demand in Belgium immediately after the war."

The statistics show that in 1923 the United States exported to Belgium 4931 passenger cars, 3959 trucks and 591 motor cycles.



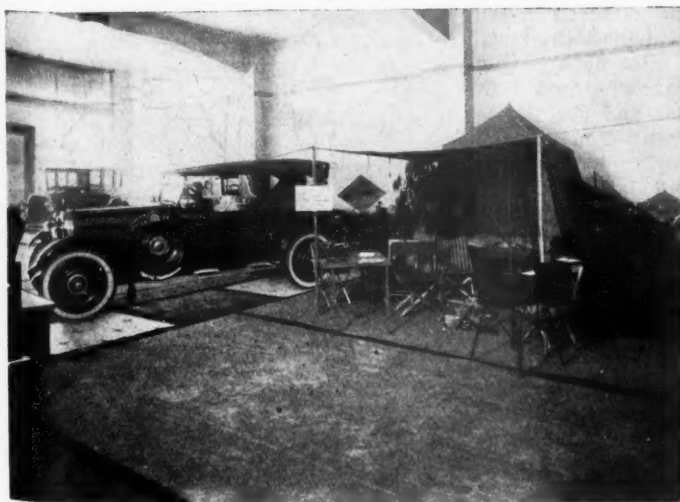
This machine, says the Southwest Nash Motor Car Co. of St. Louis, grinds 600 valves a day. It was built by two of its employees

# Open Road Display 'Lures Salesroom Visitors



Enticing entrance to San Francisco Chandler-Cleveland dealer's attractive Open Road Week display. Once inside it was necessary for the visitors to pass through a display of latest models of cars before regaining the street

DEALERS who have spent a lot of money on an attractive window and show room display have seen hundreds of visitors attracted inside to look at it and then leave without giving the slightest notice to the exhibit of the various models of cars they have to sell. When the Chandler-Cleveland Motor Car Co. of San Francisco arranged its Open Road Week display this summer, Charles L. Bowman, sales manager, determined to make the visitors at least pass by the automobiles on the sales room floor. In arranging the display illustrated here advantage was taken of the fact that the sales room had two entrances on the same street. The ferry boat display was arranged in one entrance, with an orchestra present to attract the passers-by. Once inside the ferry boat the path led through an exhibit of camping and radio materials and then into the other part of the sales room where it was necessary for the visitor to pass by the automobiles on display before reaching the exit. The company estimates that during the week 10,000 visitors passed through the display, resulting in the listing of the names of many prospective customers as well as a number of direct sales.



Camp and radio display in connection with Open Road Week

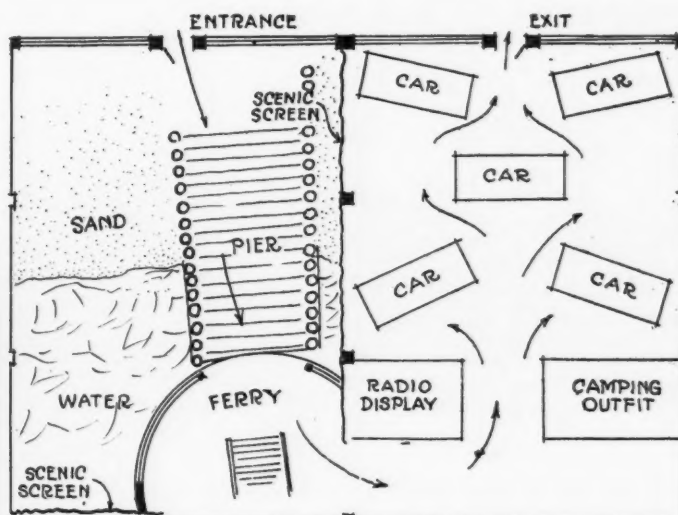


Diagram showing how visitors passing through the ferry boat display were cleverly diverted into the main sales room where they could not help observing the cars on exhibit



# The Profitable Side of the Lathe

*What Can Be Done With a Lathe in the Automotive Shop—The Size of Lathe to Buy—Advantages of Milling Attachment, Tool Post Grinder, Taper Turning Attachment, etc.—How One Shop Is Making Money Off Its Lathe*

By R. M. IKERT

IT often has been said that the lathe is the basic unit of every shop and when the facts are known it will be at once apparent that such is the case. The drill press, the sensitive drill and other pieces of equipment are adaptations of the lathe. It is just as easy to do a job of drilling in a lathe, for example, as it is in a drill press, the only difference is that when drilling large and bulky pieces it is easier to place them on the table of the drill press.

The shop equipped with a lathe is independent to a large degree. It is so because dozens of operations can be performed on a lathe that are entirely impossible otherwise. With a lathe it is possible to make other pieces of equipment to say nothing of the ability to make parts of practically every description. Especially is this so when the lathe is equipped with attachments, such as milling attachments, taper turning attachment, crankshaft grinding attachment, etc.

Now as to whether or not a shop should buy a lathe there is this to say.

In certain shops, especially those doing service and maintenance work on one make of car in the lower price class a lathe is not very useful because on such cars service and maintenance has resolved itself largely into a matter of parts replacement. New parts are installed for worn parts and the cost of reconditioning old parts is not commensurate with the cost of a new part plus installation charge.

Most of the dealer shops in small towns, together with the repair shops and garages in order to make the shop pay

*This is the first of a series of articles on the use of shop equipment in the automotive shop. The purpose of this series is to help the dealer, serviceman and repairman to make his decisions in the selection of equipment and tools. Very often the full advantages of a machine tool are not realized and conversely, often equipment is bought for which there is but little use. In order that the shop might be run on a profitable basis it is hoped that this series will be of help in pointing out the salient features of various pieces of shop equipment. Subsequent articles will deal with the drill press and following it will come articles at regular intervals on grinders, cylinder tools, align reamers, welding outfits, etc.*

the same degree as in the case of the shop which caters only to one make of car and has built up considerable volume of work on that car.

A lathe is a most useful, and in fact, a necessary tool in the general shop. Every day in such a shop someone brings in a job which calls for some kind of machine work and nine times out of ten the lathe will handle the job, especially if it is supplemented with sufficient attachments whereby milling operations can be done.

Insofar as figuring on what size of lathe to buy, probably no one is in better position to answer this than the lathe makers who from their record of sales to repair shops and service stations know the size of lathe that has proved most popular.

From all that can be gathered in the field of service and from the lathe makers and machine tool sales departments the lathe with a 16 in. swing and 8 ft. bed is the most popular and useful size for the automotive shop. The mistake usually is made in buying too small a lathe. The 16 in. by 8 ft. lathe will handle rear axle shafts to good advantage and it must be remembered that in rural sections especially broken axle shafts on the older models of cars and trucks are common. No shop can keep a stock of these on hand but the lathe-equipped shop can turn up a shaft in a short time.

After the size of lathe has been determined the next question usually is as to whether or not it shall be of the quick change gear or standard change gear type. Our observations have shown that in the majority of cases the automotive shop is equipped with a standard change

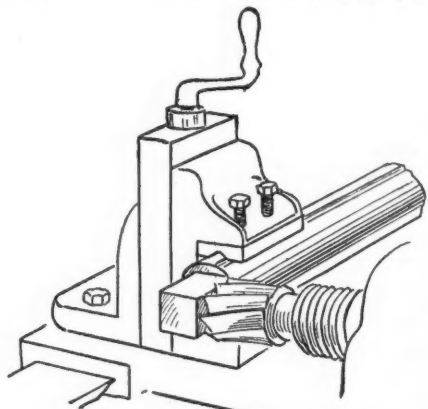
gear lathe. So far as price is concerned this type of lathe costs about \$75 less than a quick change gear lathe.

There is no production work in the automotive shop so far as the lathe is concerned and consequently this makes the standard change gear lathe preferable. Seventy-five dollars is quite a sum of money to the small shop and this will buy a good many fitments for the lathe that will prove of greater benefit than the quick change gear feature. Based on observations and the nature of work done in the automotive shop our recommendations are for the lathe with the standard change gear.

The lathe with a 16 in. and 8 ft. bed swing, usually will take about 5 ft. between centers and this is ample to take care of practically every job the automotive shop is likely to be called upon to do. A 7 ft. bed lathe will take about 4 ft. between centers but as the difference in price of the two lathes is only about \$15 it certainly will pay to get the larger size.

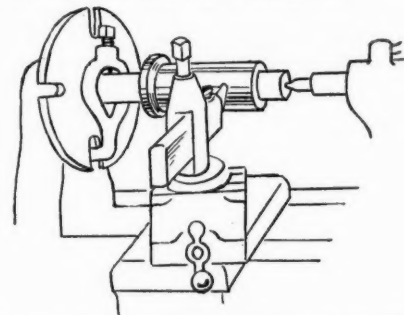
There is a large list of attachments which can be bought for the lathe and which add just that much to its usefulness. All of the attachments, however, need not be bought for the automotive shop, because there will be little or no use for certain attachments. In nearly every case the lathe maker furnishes certain equipment included in the price of the lathe. This equipment takes in such things as a countershaft, necessary wrenches, face plates, center rest, follower rest, steel centers, compound rest, etc.

While such equipment will take care of a great variety of work it should be supplemented with such attachments as a milling and keyway cutting attachment,



*This shows how it is possible to square the end of an axle shaft, for example, with a milling attachment on the lathe*

must work on all makes and types of motor vehicles and even motor boat engines. To that end, the matter of new parts installation cannot be developed to



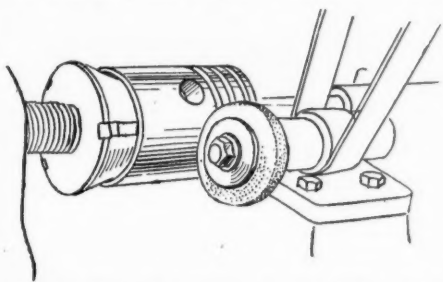
*One of the most frequent uses of the lathe in the automotive shop is for making bushings of all kinds*

milling arbor, cutters, taper turning attachment, grinding attachment, drill chuck, boring tool, threading tool, independent chuck, lathe dogs and Armstrong patent holder and tools. It is assumed,



of course, that the regular lathe tools will be on hand. Other items which may be added from time to time include a knurling tool, wood turning tools, etc.

Reference to the list of operations on these pages will show what a variety of work can be done on a lathe in the automotive shop. The well-tooled shop, however, will not use the lathe for all these operations because there will be other machinery available and thus leave the lathe free for the operations which cannot be performed on other machines. Thus, valve facing and grinding, drilling, boring cylinders, grinding cylinders, straightening shafts, undercutting mica, etc., are operations which can be performed on machinery especially intended for them. The arbor press will be used for straightening shafts, and an electric



Finish grinding a piston in the lathe. This is accomplished with a grinding attachment

cally driven valve lathe probably will be used on the valves, and so on.

The operations listed here have been grouped and presented chiefly to show just what can be done on the lathe and that in a pinch practically all the operations done on other machines can be done on the lathe. Naturally it would be uneconomical to assume that having a lathe there is no necessity for other equipment. The drill press or electric drill will invariably be used in the shop for drilling operations, but just the same the lathe is there to do it in case this becomes necessary.

One shop has found the lathe most useful in making bushings. This shop is located in a small town through which a lot of tourists travel and who frequently plan to spend the night there. The shop gets a great share of the service and repair work of the tourists and owing to the variety of work has found the lathe the most useful of its equipment. The owner of the shop states that having on hand cored bars of bronze enables him to turn out any kind and size of bushing very readily. In fact, he says the work on bushings alone has just about paid for the cost of the lathe.

The operations listed here are by no means all that can be done on the lathe. Always there will come up cases of where the lathe can be used to advantage. Special fittings and angle iron supports sometimes have to be made to hold certain jobs while being turned in the lathe and much of this work is difficult to classify. The operations on these pages are simply typical of what the lathe can be profitably used for the automotive shop.

The cost of a 16 in. by 8 ft. lathe, having

## OPERATIONS WHICH CAN BE PERFORMED ON A LATHE IN THE AUTOMOTIVE SHOP

### GENERAL

- 1—Drilling
- 2—Turning tapers
- 3—Cutting threads, inside and outside
- 4—Making all kinds of bolts
- 5—Tapping
- 6—Knurling
- 7—Wood turning
- 8—Making coil springs
- 9—Sharpening reamers
- 10—Backing off reamers

### OPERATIONS ON MOTOR VEHICLES

#### Crankshafts

- 1—Machining main and connecting rod bearings
- 2—Grinding main and connecting rod bearings
- 3—Lapping main and connecting rod bearings
- 4—Testing crankshafts with dial indicator

#### Cylinders

- 1—Boring cylinders
- 2—Grinding cylinders

#### Pistons

- 1—Turning semi-finished pistons
- 2—Finish grinding pistons
- 3—Aligning pistons with face plate of lathe
- 4—Grinding piston pins

#### Flywheel

- 1—Boring and bushing clutch pilot bearing recess
- 2—Truing clutch drum face
- 3—Machining flywheel rim for starter ring gear

#### Valves

- 1—Facing valves
- 2—Grinding valves

#### Axles and Shafts

- 1—Making axle shafts
- 2—Threading axle shafts
- 3—Turning all kinds of shafts
- 4—Squaring the end of a shaft
- 5—Milling keyseat in shaft
- 6—Cutting a Woodruff keyway in shaft
- 7—Making clutch and gearset shafts

#### Electric

- 1—Truing generator commutators
- 2—Truing starter commutators
- 3—Truing slip rings on generator armatures
- 4—Straightening generator shafts
- 5—Truing timers
- 6—Truing field poles in generators
- 7—Undercutting mica on commutators

the standard change gear feature and complete with the equipment furnished by the makers averages about \$450, while the same sized lathe with milling attachment, taper turning attachment, grinding attachment, universal chuck, drill chuck and patent lathe tools will cost about \$675.

## Revised History of Studebaker Corporation

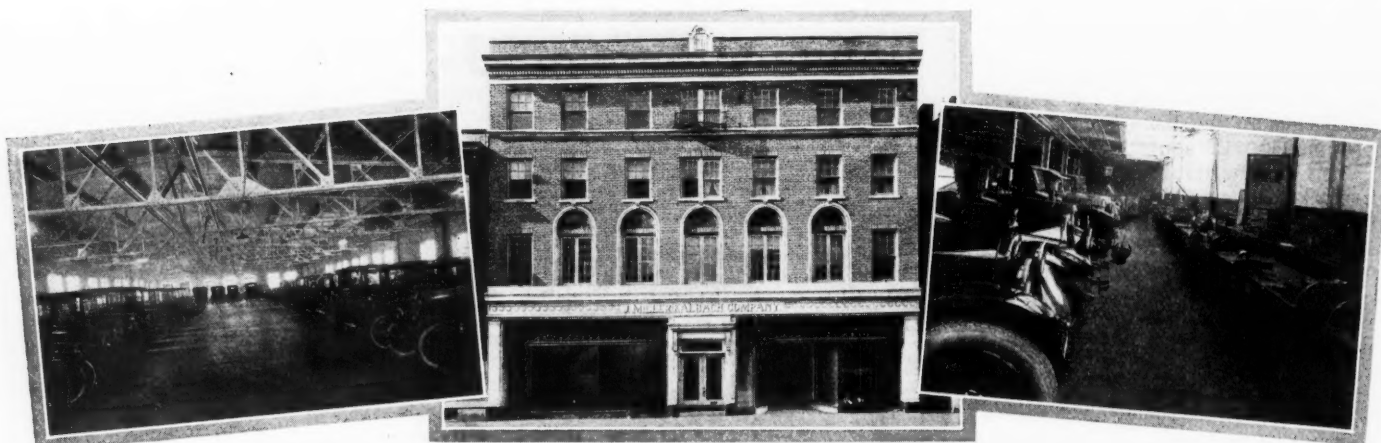
A REVISED edition of the "History of the Studebaker Corporation," by A. R. Erskine, has been published by the Studebaker Corporation, South Bend, Ind. In this volume the present head of this great corporation brings up to date the romantic story of the development and accomplishments of the company since it was first established as H. & C. Studebaker in 1852. From this early beginning as a maker of wagons the growth of the company is traced to its present position as one of the largest producers of modern motor vehicles. The book contains 230 pages and is well illustrated from photographs. The book contains an introduction by Charles A. Lippincott.

## Profitable Maintenance

So many requests for copies of his talk: "Profitable Maintenance" have been made that Arthur R. Mogge, merchandising director of The Automotive Equipment Association, has had it printed in a small pamphlet which is to be sent to sales representatives of all members of the Automotive Equipment Association with the idea that the booklet might be of value in assisting them to promote the A. E. A. Profitable Maintenance campaign.

## Highways and Highway Transportation

Highways and Highway Transportation is published by Thomas Y. Crowell Co., of New York City. The author is George R. Chatburn, A. M., C. E., professor of applied mechanics and machine design and lecturer on highway engineering at the University of Nebraska. A very interesting chapter is devoted to automotive transportation. Most of the other chapters also have to do with the influence of the automobile upon highways and their development.



Left, storage garage of J. Miller Kalbach Co. which is a duplicate in space of the shop. Center, combination sales, shop, garage and apartment house of the company. Right, the Franklin workbench in the daylight shop. Wood block floors please the mechanics. The shop is always clean and ready for inspection by customers at any time

## Where Maintenance More Than Pays Its Way

*Franklin and Nash Dealer at Reading, Pa., Uses Service Satisfaction to Bring in New Buyers, But the Shop Work Returns a Profit*

THERE are several special points about the establishment of J. Miller Kalbach, Franklin and Nash dealer at Reading, Pa., that indicate that Mr. Kalbach puts much faith in maintenance as the backbone of an automobile dealership. His faith in the future of his business is proven by his investment in the handsome and costly plant that he has erected, but which is so designed as to reduce, rather than increase, overhead.

The erection of this plant came about when Mr. Kalbach was confronted with increasing rents in Reading which made the business section seem to be too expensive for the rate of profit possible in automobile sales. Also that the situation in this city did not lend itself to a semi-suburban location—there are too many roads leading out of Reading for any one to be suitable.

So Mr. Kalbach selected the section where he would prefer a location and set about to find the particular site. This was found in an apartment house district and his plans were made to conform. The result is shown in the photographs—a combination apartment house, salesroom, maintenance shop, accessory store and storage garage, with the foundation and walls of the utility part of the structure built with a view of carrying two more stories when business demands. The residence portion of the building is four stories. The appearance of the house and the complete separation in construction of the residence and utility portions of the building have answered the question "who would live in a garage?"

To get back to the introduction and the straws that show Mr. Kalbach's faith in maintenance as the foundation of a

business. He began business 10 years ago as a salesman with an office. Franklin was one of the cars that he sold. He has sold Franklins consistently since and has taken and given up dealership for other lines at times. Last fall he added Nash to his line and this continues. So his business is primarily built on his idea of the Franklin line. Here are the points as to maintenance;

1—On an engine stand in the shop is a thoroughly overhauled Franklin engine, ready for installation. This engine is provided as emergency insurance for Franklin owners. In case of a serious accident to an engine, or a general overhaul requiring a long period, this engine is ready for installation in the customer's car so that he will not be deprived of the use of his car during the long repair period.

2—Back of the shop proper is a receiving space which is a part of the shop allotment but is separated by a partition,

where all cars are received, examined, the trouble diagnosed and work card written, before the car is admitted to the shop. Then it is taken to that part of the bench where are the best facilities for this job.

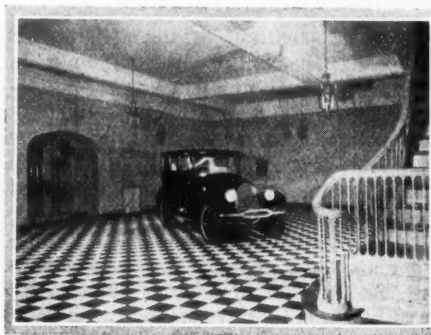
3—Charles Fieldhofer, the service manager, has a closed, well equipped office at the point where the cars come into the shop. His name is on the window that looks out on the receiving space. All customers know with whom they are dealing. Mr. Fieldhofer is a stockholder in the company and the responsibility of his department is put squarely up to him.

4—All guarantee or sales service work is charged to the new car sales department, and the maintenance department is under obligation to report a profit on its repair operations. Used car work is charged to the used car accounts, so maintenance shoulders none of these burdens.

5—Shop customer lists are compared closely with owner lists and a consistent effort made to gain a 100 per cent owner-shop customer list.

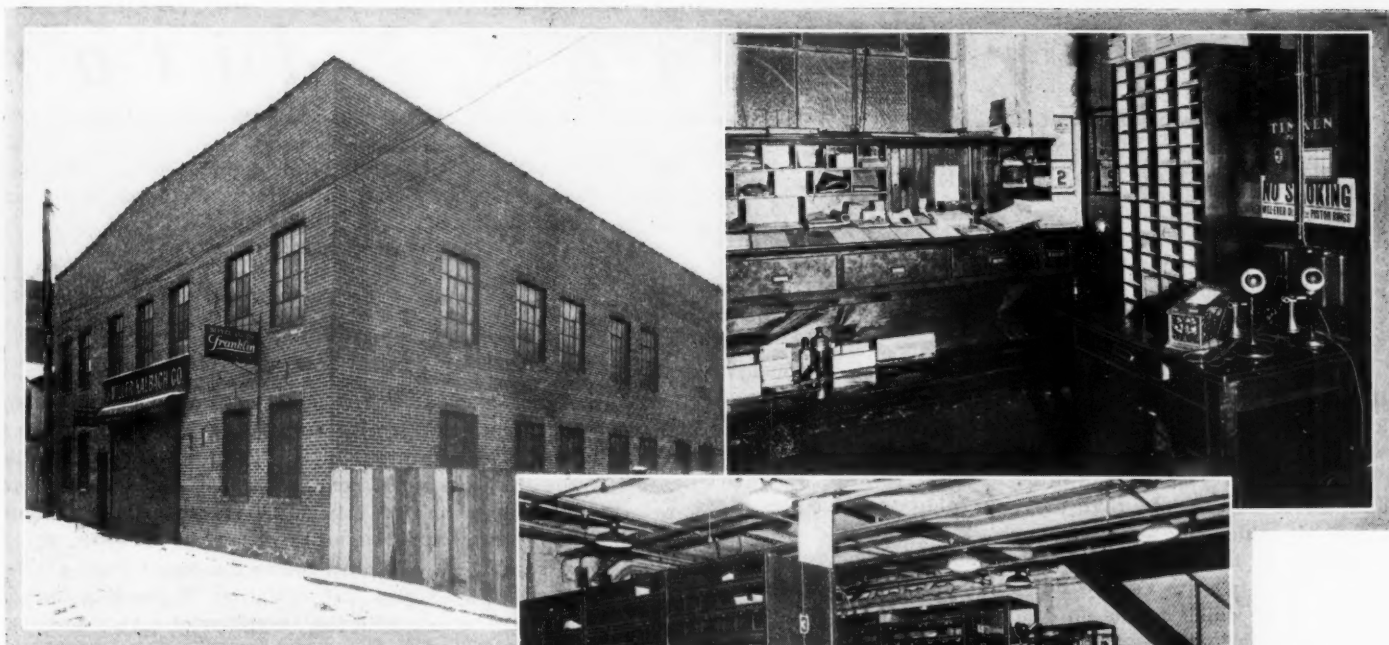
6—In planning this spacious shop, Mr. Kalbach paid the extra cost required for a complete wood-block floor, because his shop men did not like to work on concrete. He says that the added cost has been returned in the few months since the shop opened by increased contentment. Also a special toilet room is provided for the men, with iron lockers and a shower bath. This also is a paying investment.

7—Mr. Kalbach is alive to the flat rate basis of selling maintenance and the shop is practically on that basis. Because of the apparent satisfaction of his owners with the operating basis, this system has



Interior of the salesroom of the J. Miller Kalbach Co. The door in the alcove at the left of the entrance masks the closet entrances





not been put into effect with all customers. Most of these bring in their cars and pay monthly bills. As long as there is no credit loss, this system will obtain. Any lax paying customer is put onto the flat rate-cash basis. As a safeguard against objections to bills, all pass through the hands of Ralph Dunkleberger, the office manager, who acts as referee. If a bill appears large to him, he gets the work sheet, goes over the details and if not entirely satisfied, he takes up the bill and the circumstances with Mr. Fieldhofer. As a result there is a thorough preparation of the report to be given to the customer if the latter objects. Very few do, because this careful inspection of bills smooths out most of the causes for objections.

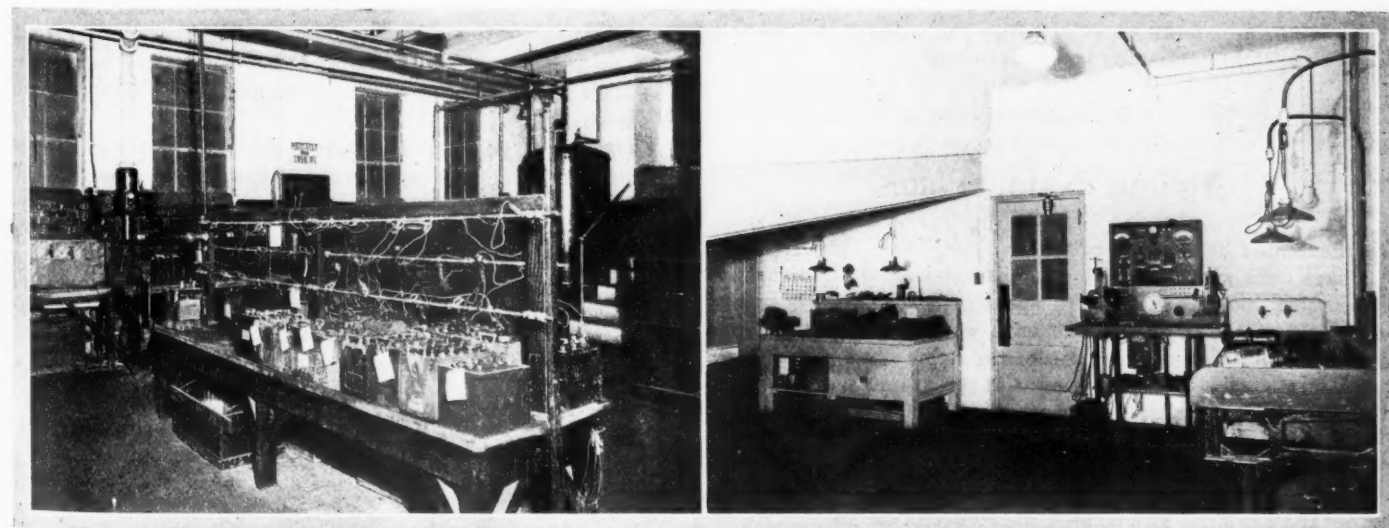
8—This shop and its reputation is made a basis of selling cars. Prospects are taken to the shop and are frankly told that while every effort is made here to give satisfactory work, a profit is expected.

9—A complete electrical shop is a part

Upper left, the shop entrance is on an amply wide alley and this part of the building is constructed with a view of adding two additional stories. Upper right, the office of Charles Fieldhofer, service manager. His name is on the doorway so that all who enter know with whom they are dealing. The other view is taken in the parts department

of the equipment. Two men are employed in this branch of the shop and one of the big benefits reported in a better understanding of automobile mechanics on the part of the electrical men and vice versa.

Instead of a car belonging to one of his customer's being relegated to the junkman, he expects to entirely overhaul the chassis, redecorate and refit the body and turn this car back to the customer as practically a new car.



These two views taken in the battery department of the J. Miller Kalbach Co. show the excellent equipment at hand and the general business-like atmosphere of the place. Battery maintenance has proved very profitable in this shop



# Letters to the Editor

## Satisfied Dealers an Asset

Cleveland, O.

To the Editor of MOTOR AGE:

Never before was the dealer such an important cog in motor car merchandising machinery, as evidenced in the strenuous efforts which manufacturers are now making to secure representation of the right sort.

The car buyer today fully realizes the extent to which he is dependent on the dealer for protection to his investment, and he is exercising as much care in selecting a dealer with which to do business as he is in choosing a car.

It is, therefore, clearly up to the manufacturer to so support and assist his dealers that they are able to meet the new standards which the public demands.

Manifestly, the dealer who receives only half-hearted factory co-operation, who is unsuccessful, unhappy and oppressed by policies over which he has no control, is certain to reflect that dissatisfaction in his treatment of customers. He is not a good dealer to do business with, and the public knows it. The funny part of it is, so many manufacturers do not seem to realize the price they must pay for this dealer discontent in loss of sales volume, in diminished net profits.

The public likes to do business with a dealer who is prosperous, who is sure of himself—a dealer with complete confidence in his own organization, in the product he is selling, and in the company which produces it. That confidence is automatically imparted to the buyer.

The time has come when the manufacturer can no longer side-step his responsibility if he expects to remain in business. He must face conditions as they are today, not as they were yesterday or ten years ago.

No longer can he stand aloof and let the dealer fight his battles as best he can. No longer can he ignore the dealer in the formulation of his policies of manufacture and merchandising, for the dealer is his contact with the public and knows, better than anyone else, what that public demands and must have.

I feel that in the organization of the Templar Dealers' Association we have taken a great advance step in giving the dealer the recognition and assistance he needs and is entitled to. Through this Association, the dealer is given actual authority in the formulation of our policies of manufacture and merchandising. He is virtually a partner in the business. This Association is an important step in putting the dealer on a sound business footing and enabling him to meet the public's ideas of present-day motor car merchandising.

T. L. HAUSMANN,  
President Templar Motor Car Co.

## Against Name Plates

Parkersburg, W. Va.

To the Editor of MOTOR AGE:

I have been watching your columns quite closely for various suggestions looking to the betterment of conditions, generally, in the automotive industry, and have wondered why some one hasn't suggested the elimination of the name plate on automobiles, trucks, etc. A name plate—if in the proper place—on the dash, or somewhere away from the public gaze, is all right, to be sure, but most assuredly not where they are being placed today. You wouldn't want a hat with the word "DUNLAP" on the outer band, or a pair of shoes with the word "FLORSHEIM" across the toe, then why compel the owner of an automobile to carry an advertisement during the life of the machine without compensation? I am not going to say that the name plate—

as carried today—is vulgar, but I am tempted to say that they really cheapen, rather than add anything to the car's appearance. Think it over.

Very respectfully,

ED. O. BOWER.

## The Copper Comes In

Huntington, West Va.

To the Editor of MOTOR AGE—I notice among the editorials of your issue of June 26th, the article, "A Model Motor Cop," which I have read with much interest, and am moved to write and tell you that it doesn't seem to me that model motor cops are so out of the ordinary. I have driven quite a little within a radius of several hundred miles of my home town, and I want to say that I have always found the motor cops gentlemanly and courteous, with the exception of possibly one or two, and I really believe with the exception of a very few that all the "cops," both city and state, are alright, and when things go wrong and the motorist is "bawled" out it is usually two-thirds the motorist's fault.

Just recently coming back from Cincinnati to Huntington a car of tourists were passing everything on the road regardless, and a motor cop was after them, but rather a little behind. A few miles farther on we came upon the speeding car wrecked. Not only the speeder was wrecked but they had run headon into another car on a curve, skidded and hit still another car—three cars wrecked and four people injured, all because one car was in a hurry.

This letter may seem useless to you, but from general observation I am for the "motor cop," and I still maintain that it is not a case of one "model motor cop," but of many such, and they should have the respect of the motoring public. If the public will keep within the bounds of the laws the motor cops are placed on the roads to enforce I don't think anyone would have cause for complaint, and would not need to feel when approached by a "cop" that he had stopped because of any other reason than to help them on their way.

Respectfully submitted,

A WOMAN DRIVER FROM WEST VIRGINIA.  
Chicago, Ill.

## This Man Has Seen the Light

Fort Smith, Ark.

To the Editor of MOTOR AGE:

I bought your June 12 issue of MOTOR AGE at the newsstand and want to tell you that I sure do make use of your magazine in our business.

While the bicycle and motorcycle dealers are not as "up to date" as car dealers, they are ahead of them in one way. It would be business suicide for a motorcycle and bicycle dealer not to handle tires and accessories. I do not see why the automobile dealer does not see the light and handle these lines. I believe that if a dealer put in a stock of good tires and accessories and "ask 'em to buy" he would have a larger income tax to pay.

We order in small lots and turn our stock over about every 60 days and make about 40 per cent clear profit—not bad. We are waiting for the time when we can enter the motor car field and have our cars in the sales room, but you can bet that a nice lot of tires and accessories shall keep the Duesenberg company.

Yours truly,

BILL MATHEWS.

# EDITORIAL

## Service Bought and Sold

THE customer kicked to the proprietor because the mechanics who worked on his car had left some grease marks on the body. To the customer's surprise the proprietor accepted the criticism as applying directly to himself rather than to the mechanics. The responsibility was his, he declared, and the reflection of a poor job was upon him rather than upon the men he had hired to do the work.

Then this proprietor went ahead to explain his theory of service.

"If I can't sell you good service," he said, "it is my own fault. I buy the labor of these men and in turn I try to sell it to you and my other customers. I try to get a profit from it.

"But if I don't buy good service naturally I can't sell good service."

He went ahead to relate how he tries to impress upon every employe the importance of performing his duties in just as nearly a perfect manner as it is humanly possible. He tells the employes that they are merchants just as much as he is and that their business is to sell him the highest grade of service of which they are capable. He points out that if the service they sell him is not good enough for him to resell at a profit he will have to buy service somewhere else and they will lose their jobs. In this way he builds up in his employes a real pride in their own performance.

You may be sure the customer who complained went away completely satisfied and thoroughly convinced that here was a service establishment worthy of the name.

## Hang It on the Car

THERE is a service manager we know who is a bear for work, but he's not very strong on courtesy. We visited the domain over which he rules the other day to have installed a set of those devices which are intended to—and do—materially smooth the riding of one's car over rough roads. The service manager frightened us in the first place by informing us gruffly and without any air of compromise that it would cost some-teen dollars for installation and fittings because the devices in question had been taken from another car. The figure he quoted was enough to have scared us away and he didn't seem to care whether we remained or not. But that wasn't the worst of it. After we had bravely decided to have it done anyway we obtained a work order from the front office and were instructed to present it to the service manager. We did and he said:

"Hang it on the car."

And he didn't say please. But he did say something that sounded mighty nice, and that was: "It will be ready in about an hour." The business like manner in which he went about it indicated that he was telling the truth. And when we called for the car it was ready—no waiting, and the charge was little more than half of the estimate.

Quality and promptness of service permits one to overlook a little lack of courtesy, but it would be mighty fine if courtesy could be thrown in for good measure.

## Service Station or Repair Shop

CAR dealers in St. Louis are seriously considering calling their maintenance departments by some other name than service station. They say the name service station seems to convey the idea to customers that the work done there is not to be paid for. With the same thought in mind one car manufacturer recently announced that hereafter all its service stations would be called "maintenance departments."

It won't do much good to change the name unless methods are changed. How did "service station" come to connote something for nothing? By custom and practice, of course. When car dealers and salesmen, eager to overcome competition, gave the customer the service station along with the car it was only natural that the car owner didn't expect to spend any money in the service station.

Call it a repair shop or a maintenance department if you wish, but if you start giving away the service that it performs you will soon find that most of your customers will leave their pocketbooks at home when they enter it.

## Helping the Car Owner

A VALUABLE little booklet of advice to the new car owner has been published by the Traffic Planning and Safety Committee of the National Automobile Chamber of Commerce.

It is intended and recommended by the committee that automobile manufacturers purchase these booklets in quantity and include one free with every new car shipped. Then it is expected that distributor and dealer will see that the booklet let stays with the car until it is delivered into the hands of the purchaser.

This is a wise move, for the advice given in the booklet is sound and much needed. It has to do with precautions which if observed generally will result in much greater safety on the highways and a more favorable repute for the automobile. It also contains some good advice about having the dealer inspect the car and keep it in good condition, and for this the dealer should be paid.



# The READERS' CLEARING HOUSE

## Questions & Answers on Dealers' Problems

### Sagging Spring May Affect Steering

Q.—We have a 1923 Superior model Chevrolet coupe in which we experience trouble at about 35 miles per hour due to front wheel shimmy. We have put in a new steering gear and new spindle bolts and bushings also new tie rod bolts and bushings and have had the wheels lined up.

On this car the location of the front axle is determined by the front springs which also by their condition determine whether the steering spindle king pins are vertical or slant forward or backward. It is quite likely that a sag in the front springs has disturbed the setting of the front axle and we would accordingly recommend your trying a new pair of front springs.

Q.—This car has a leather faced cone clutch which is giving trouble due to slipping and grabbing.—Felix E. Julius, Stockton, Ill.

The repair of any cone clutch begins with the cone itself which must be trued before the leather is applied. In Chevrolet service stations it is customary when relining a clutch to mount the clutch on an arbor and turn it in a lathe to see if the cone is truly circular. If it is not it can sometimes be brought to shape by tapping it carefully with a lead or copper hammer. Even when the cone is truly circular it is sometimes found that the thickness of the leather will vary so that a finished cone is not truly circular. This can be determined by rotating the clutch in the car and holding the edge of a screw driver near the circumference of the cone to notice the amount of eccentricity. If this is in excess of 1/32 inch it may cause trouble. Grabbing is often caused by improper adjustment of the leather expanders. Adjustment is obtained by turning each of the expander nuts from right to left until a thickness gage about .005 inch thick can be placed between the nut and the clip. In the event that the clutch will not hold when engaged, turn each expander nut from left to right until they slightly touch the clip, then give them one-half turn in the opposite direction.

### EFFECT OF REBORING ON COMPRESSION

Q.—We have a 1922 Kissel Speedster, motor 35/16 by 5 1/4 which was rebored to 3 3/8 or an increase of 1/16 of an inch. The pistons were changed, light alloy pistons being installed. These new pistons when measured showed 1/8 in. lower at top dead center than the old cast iron ones did. The question is has the compression been lowered or increased? Con-

### The Readers' Clearing House

**THIS department is conducted to assist dealers and maintenance station executives in the solution of their problems.**

**All questions are answered direct by letter, so the name and address should be given in full. This saves waiting for the answer to be published, which sometimes occurs several weeks late, depending upon the space available.**

**Readers' names will not be published with articles, if a request to this effect is received with the letter.**

**Inquiries not of general interest will be answered by personal letter only. Emergency questions will be replied to by letter or telegram.**

**Also state whether a permanent file of MOTOR AGE is kept, for many times inquiries of an identical nature have been made and these are answered by reference to previous issues.**

**Addresses of business firms will not be published in this department but will be supplied by letter.**

**Technical questions answered by B. M. Ikert, P. L. Dumas and A. H. Packer; Legal, by Wellington Gustin; Paint, by G. King Franklin; Architectural, by Tom Wilder; Tires, by a Practical Tire Man; General Business questions, by MOTOR AGE organization in conference.**

siderable trouble, knocking, pounding, spark knocking, lack of power and speed has developed in 2000 miles of travel, and we would appreciate your opinion.—D. W. C., East St. Louis.

The change in the compression has been rather minute. We have figured it out on the assumption that the original compression was 66 lbs. and find that the new compression would be 64 lbs. Of course if the original assumption is higher or lower the final answer would be proportionately higher or lower, but you can see that the percentage of variation has been very slight, so that this could hardly account for the trouble. It occurs to us that possibly the piston rings were not very well fitted to the cylinder walls and were not lapped in and that considerable carbon has formed due to oil working up from the crankcase. If this happens to be the case cleaning out the carbon will doubtless remedy the condition, for in 2000 miles travel the piston rings will have become fairly well fitted to the cylinder walls. It might also be well to check up the spark timing for in working on the engine it may have been advanced too much.

### Overland Heavy Duty Axle Shafts Available on Older Models

Q.—I have a 1920 model Overland sedan with wire wheels which has given good service with the exception of the breaking of the left rear axle shaft as follows: After 16,250 miles the first one broke on May 29th, 1923, at 18,000 miles the second shaft broke in July, 1923. At 20,030 miles the third shaft broke in November 1923, while the fourth one broke at 22,800 miles in June 1924. The first two were the regular Overland axles and the last two were replacement axles. During the life of the first axle shaft the car performed much more rough service than at any time since, for during the first 2 1/2 years it made several trips to the mountains and outlying districts, while for the rest of the time it has seldom been off of paved streets. While the car is moving there is no perceptible wobble in the wheels but when jacked up and turning slowly there is a slight side to side or irregular motion, no matter which wheel is put on this axle.—J. Whitney Webb, 3221 Frankfort street, El Paso, Texas.

One mistake often made in putting in a new axle shaft is that the wheel is not properly fitted to the shaft. In the wheel hub there is a tapered hole and grinding compound should be used on the taper of the shaft and the wheel worked around until the two tapers fit each other perfectly. The key should also be a perfect fit in the keyway in the hub also in the keyway in the shaft. When the fit is not perfect there is a tendency for the wheel to work back and forth to some extent and put an abnormal strain on the shaft when the car stops or starts. The best remedy for this condition, however, is to install a set of heavy duty axle shafts and hubs. The Overland Motor Car Company are extending to the owners of Overland cars the benefit of their engineering experience by a replacement plan which enables Overland owners to exchange their old axle shafts and hubs for these new heavy duty shafts. The local Overland service station can no doubt arrange for this exchange of shafts.

### HOW A CHAIN HOIST WORKS

Q.—Picture the course of a chain through a plain differential chain hoist and advise just how the leverage is calculated?—Charles J. Dempsey, Inc., 2300 W. Madison street, Chicago, Ill.

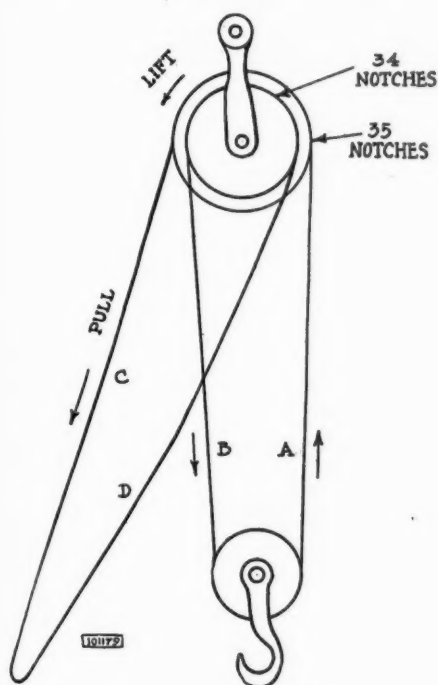
In the conventional chain hoist there is a wheel at the top which contains two grooves or sprockets into which the chain fits. This is the equivalent of having two separate sprockets mounted on the same shaft and turning together. In the illustration shown this upper wheel will have to turn to the left in order to lift the weight and we have indicated



that there are 34 notches on the smaller wheel and 35 on the larger one.

For this reason when the upper wheel makes one complete revolution to the left the chain A will have been lifted 35 notches while chain B will have been lowered 34 notches. We have therefore taken one link out of the chain loop AB which is holding up the weight or have reduced each side of this loop by one half link.

It will then be necessary to turn the upper wheel two revolutions to the left in order to remove a link from both A and B, or to raise the weight the distance of one link in the chain. In doing this, however, we have had to pull on chain C a distance equivalent to twice around the larger wheel, or, in other words, a distance equivalent to 70 links

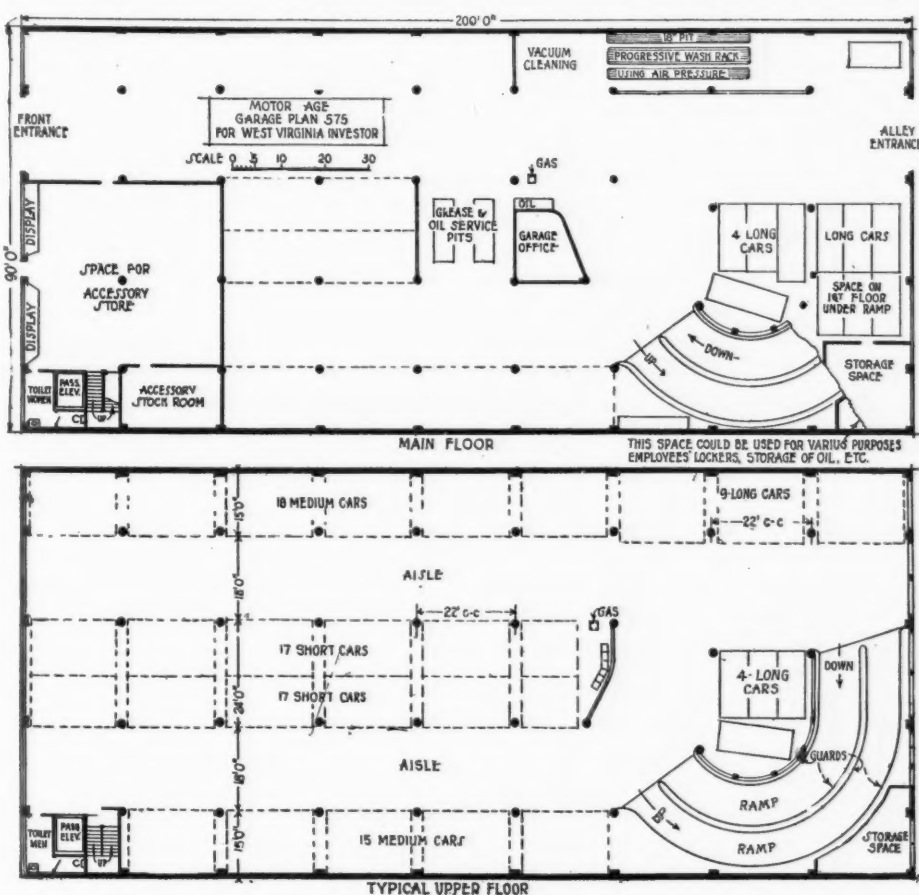


of the chain. The leverage ratio is apparently then 70 to 1 for the forces required will be inversely in proportion to the distance through which they act—friction being, of course, neglected.

### PLANS FOR CITY GARAGE

Q.—Thanks for the letter of the 14th, with the information as to the modern method of down town car storage. As you request we are sending along the measurements of the lot that we have in mind so that you may make a pencil sketch of what you would consider the best method in our case. While the main entrance no doubt, should be on the avenue end of the building, the main part of the traffic to and from our garage would likely be from the rear or alley entrance, for the reason that on the

## Design for City Downtown Storage Garage



avenue side there is a lot of travel and it would not be practical to come and go at this entrance with the rapidity that would be necessary if we went in for day storage which is indicated as a profitable source of revenue. —West Virginia Investors.

It is to be regretted that your lot is not 5 or 10 feet wider, as if such were the case there would be no need of segregating cars as to size. There are two ways of arranging the storage of this building. One way in rows placed longitudinally and the other way in rows placed transversely. In the latter arrangement there would be just barely an aisle longitudinally connecting the cross aisle and for this reason the storage capacity is much higher using the longitudinal aisles. The only disadvantage in arranging this building in this manner is that the two storage spaces will only be 45 feet wide apiece. Arranging one row of short cars on one side and one row of medium length cars on the other leaves an aisle of 18 feet in width. If larger cars were stored here the aisle would be too narrow to handle them.

Luckily the ramps can be arranged so

that there is space for 13 long cars on each floor and this no doubt will be large enough to take care of the long cars you will have. People who own the long cars usually employ chauffeurs, and then can drive their cars around and avoid storage.

On the first floor we have arranged a front and rear entrance as well, with a wide straight aisle for passageway between the two of them.

The ramp can be reached from this aisle with an easy turn from either entrance.

The two ramps are circular and concentric, the outer of which will be easier and consequently used for the up traffic.

The passenger elevator and stairway is in the corner of the accessory store in order to bring customers through this store and in contact with the accessory stock.

### NEW \$75,000 HOME

SALT LAKE CITY, Aug. 11.—The Wattis-Kimball Motor Co. of Ogden, Utah, is to have a new home costing \$75,000. It will be erected on Twenty-sixth street near Washington avenue.

### Architectural Service

IN giving architectural advice, MOTOR AGE aims to assist its readers in their problems of planning, building and equipping, maintenance stations, garages, dealers' establishments, shops, filling stations, and in fact, any building necessary to automotive activity.

When making request for assistance, please see that we have all the data necessary to an intelligent handling of the job. Among other things, we need such information as follows:

Rough pencil sketch showing size and shape of plot and its relation to streets and alleys.

What departments are to be operated and how large it is expected to be.

Number of cars on the sales floor.

Number of cars it is expected to garage.

Number of men employed in repair shop.

How much of an accessory department is anticipated.

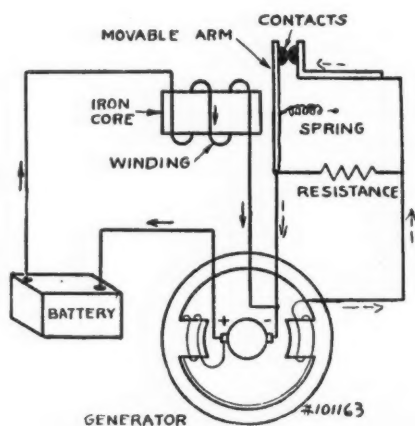
## Information on Generators

Q.—Give me some information about automobile generators. As I understand it the amperage is controlled by the third brush or the vibrating regulator, but I do not understand how the voltage is controlled. Will you please enlighten me on this matter? Would also like to have you explain how thermostatic control works. My file of MOTOR AGE extends back about 18 months.—Anaheim Subscriber.

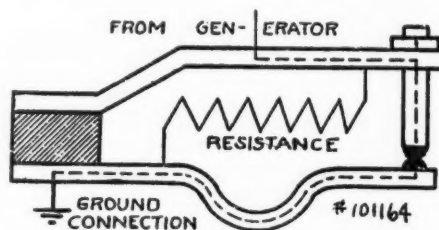
One of the Bill Fixit stories which appeared in the June 19th, 1924, issue of MOTOR AGE described very carefully the third brush system of control. Briefly, this depends on the action of the armature current in distorting the magnetism so that the shunt field is weakened. Of course, if the battery should be disconnected no armature current would flow and we would have no regulation. In nearly all systems the voltage control depends on the generator being connected to the battery, for the battery has a natural voltage which is very nearly constant, except that it rises somewhat as the battery becomes charged.

We are showing three illustrations, one of which gives the circuit for a current regulator, this being of the vibrating type. Referring to this illustration it will be seen that field current goes from positive brush through the left coil, then through the right coil, then up to the regulating contacts and across them back to negative brush. The current which goes to battery goes from positive brush to the battery and in returning goes through a winding on an iron core.

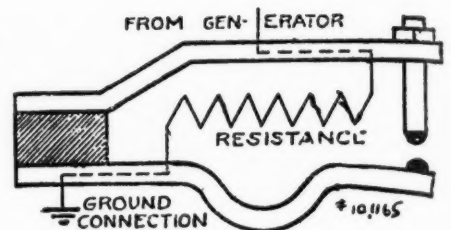
As this current becomes stronger it attracts the moveable arm and pulls the contacts open. When the contacts are open the field current must go through the resistance instead of through the contacts, which of course reduces the value of the current and weakens the generator, for the generator output depends on the strength of the field magnetism. Then as soon as the output of the generator has been reduced the contacts will close again and this action will be repeated, resulting in a vibrating action of the contacts which regulates the current. This system is also de-



Typical current regulator



Remy thermostat in closed and open position



pendent on the generator being connected to the battery, for if the circuit is broken there is no current flowing through the regulating winding on the iron core and consequently no regulation. With this system there is sometimes used a fine winding on the iron core which is connected directly to the generator brushes in which case the machine is regulated according to voltage to a greater or less extent. The three illus-

trations used are taken from a Remy service manual.

Referring now to the two illustrations which show the thermostatic control. This control is used in connection with third brush machines and is so connected that the third brush field current must flow through the thermostat. The thermostat itself is mounted inside the generator so as to be affected by the generator heat.

## 34 Possible Causes of Engine Knocks

- 1—Loose connecting rod bearings.
- 2—Connecting rods bent.
- 3—Connecting rods twisted.
- 4—Loose wrist pins or worn wrist pin bushings.
- 5—Carbon knock, aggravated by spark advance and either too lean or too rich a mixture which causes excessive heat in cylinder.
- 6—Spark knock due to timing being advanced too far. Aggravated by carbon in cylinders.
- 7—Fuel knock due to present day low test fuel. Aggravated by compression. Noticed more in slightly carbonized engines than in one recently cleaned.
- 8—Piston slap due to worn pistons having too much clearance between cylinder and piston. Aggravated by carbon in cylinders.
- 9—Main bearing knock due to loose bearings.
- 10—Bent camshaft.
- 11—Main bearing knock due to bent crankshaft.
- 12—Bent crankshaft.
- 13—End play in crankshaft.
- 14—Loose flywheel.
- 15—Timing gear eccentric, or off center so that it binds as it turns.
- 16—Gasket knock due to being slightly out of place so that it is struck by the piston.
- 17—Cam with flat spot on the heel.
- 18—Motor loose in frame of car.
- 19—Main bearings drawn up so much due to wear that crankshaft gear and camshaft gear mesh too tightly.
- 20—Spark knock with correct timing due to stuck automatic advance.
- 21—Worn valve guides.
- 22—Push rod or valve lifter loose in guide or bushing.
- 23—Camshaft bearings loose.
- 24—Improperly adjusted front end chain.
- 25—Loose camshaft bearings.
- 26—Chips of steel or other metal between teeth of timing gears.
- 27—Oil pump knock due to too much pressure or "air locks" in the line.
- 28—Too much clearance between tappet and valve stem.
- 29—Loose or worn magneto, pump, or generator coupling.
- 30—Worn bushings on accessory drive shafts.
- 31—Ring knock due to rings loose in grooves or broken rings.
- 32—Loose junk ring on Knight engine.
- 33—Loose bolts attaching cylinder block or crankcase on engine where cylinder head is not detachable. More likely to be experienced after main and connecting rod bearings have been tightened.
- 34—New piston rings hitting shoulder in cylinder wall on old type engine without detachable head. Caused by thinner gasket between cylinder block and crankcase. Remedy two gaskets or a new gasket, or regrounding cylinders.



## A Summer Service Issue Question

Q.—I have every copy of *MOTOR AGE* since November 1919 and find this *MOTOR AGE* library quite a source of information as I read every copy. I have a ledger in which I place notes of information with the date and page so I can refer to same readily. One more question I would like to ask. I would like to know if I can buy a cutout to place in the charging line of motor generator set, so that I can charge batteries at night. I would like to use one that will open up in case the power goes off, so that the battery will not discharge through the generator. I would also like to have it close again in case the power on the A. C. line comes on again.

We know of a cutout of this type which is used on 32 volt lighting plants and the name of the manufacturer will be given by separate letter. We also believe that the same concern makes cut-outs for other voltages and in communicating with them you should give the voltage of the generator and also the maximum current that you supply to your battery line.

Q.—The Summer Service Issue of *MOTOR AGE* published May 15th, 1924 is a great issue and full of condensed information. There is one point however, that I do not understand on the supplement between pages 16 and 17. Under Delco Motor Generator at the bottom of the page it says. Remove the two small wires from the motor generator terminals. It also says at the extreme end of the last paragraph of instructions (If both terminals give a flash, armature is defective). I can't see but what both terminals should give a flash. D. C. Slick, The East Granite City Garage, 2625 Linclon Street Granite City, Ill.

If inside of the motor generator the wire to a terminal should be broken there would be no flash when one of the small wires is touched to that terminal. This would be the case if a field connection should be broken for no flash would be obtained on the field terminal. It would also be the case if the connection from the terminal to the brush should be broken and then no flash would be obtained at the armature terminal.

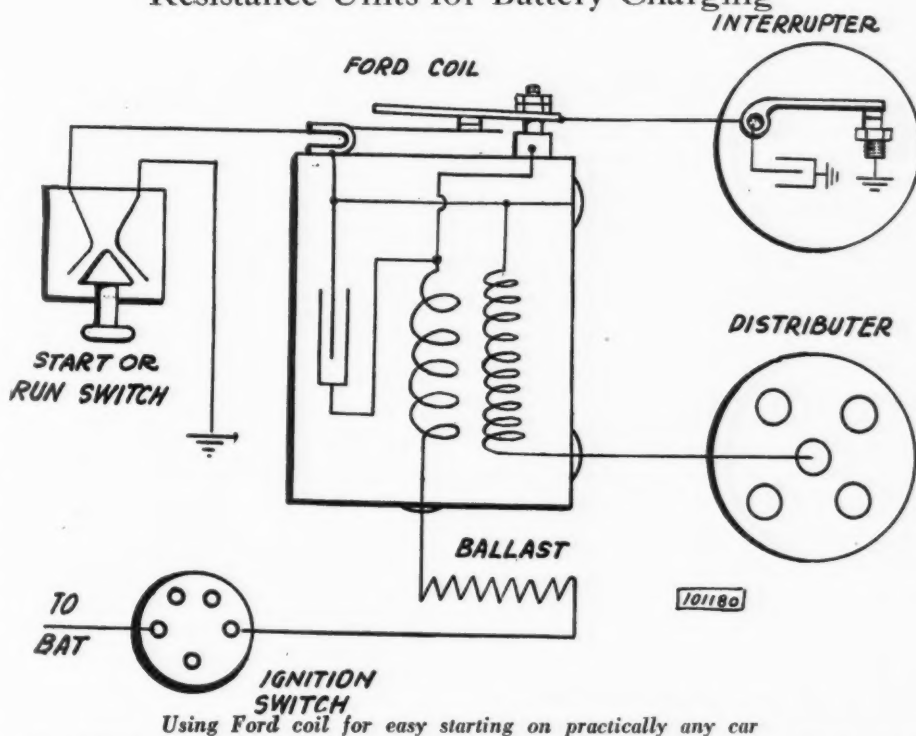
On the other hand if the circuit from battery down to these two wires is all right and there is apparently a good circuit both through the armature and field it will practically always be found that the trouble is in the armature if the machine does not generate.

## ENGINE SPEEDS OF OAKLAND AND JEWETT

Q.—Give the engine r.p.m. at 45 miles per hour for the 1924 Oakland and Jewett cars.—Hope Garage, Hope, Minn.

From the data available we find that the Oakland has 31-in. wheels with 4.7 gear ratio in the rear axle. The Jewett also has 31-in. wheels while the rear axle gear ratio is 4.6. From this data we figure that the Oakland engine turns 2,290 r.p.m. at 45 miles per hour while the Jewett engine turns 2,250 r.p.m. at 45 miles per hour.

## Resistance Units for Battery Charging



Q.—Advise where we can purchase 110 volt resistance units that screw in the standard lamp sockets for charging batteries from direct current. We intend to use them in diagrams pages 46 and 47 in the September 21st, 1922, issue of *MOTOR AGE*.

Information as to source of supply will be given by letter. These are intended, however, for use with 32-volt lighting plants and we believe are the type shown as being used in the issue to which you refer. This system of charging, however, considers using direct current and we would suggest your checking up to make sure that you have direct current and not alternating current. With this system it is also difficult to make any money unless you can keep eight or ten batteries on the line at a time. This is due to the fact that it costs just as much to charge one battery as it does a dozen, so the more you can keep on the line the better, up to about fourteen, which is the maximum that a 110-volt line will charge at one time.

Q.—Give wiring diagram for a push button system for starting a car. Would like it similar to that used on some of the old models such as 1914 Cadillac and Fig. 2 of page 44 of the September 21st, 1922, issue of *MOTOR AGE*. We intend to use a Ford coil as an additional coil while a single switch will be incorporated for operating the system.—I. L. Jeweski, Drake Electric Shop, Drake, N. D.

The system we have been able to work out involves using the Ford ignition coil instead of the regular coil that would be on the car. In the diagram we are showing it would appear to be necessary to have an interrupter which has a condenser in it. If the condenser is in the coil it would be necessary to install a condenser in the interrupter or attach it nearby and connect it as shown. Two switches will be used, one the regular ignition switch shown at the lower part of the diagram and the other a special

switch used to change from single spark to shower of sparks for starting.

We will first assume that the starting button is pushed in and that the ignition switch is turned on. It will be seen that current from the battery goes through the ignition switch and through the ballast coil to the primary of the Ford coil. The ballast is made of iron or nickel wire and should be so designed that about 5 amperes will flow from the battery when the circuit through the ballast and the ignition coil is completed and the points are not allowed to vibrate. The current going through the ballast and the primary will then go through the contacts on top of the coil and over to the switch at the left, through the switch to ground. We are now assuming that the interrupter contacts are open.

With this circuit completed the vibrator will operate and a shower of sparks will be delivered by the secondary winding to the center of the distributor and by means of the distributor arm to the proper spark plug. As the engine is turned over a point will be reached where the interrupter contacts close and this action will short out the vibrator so as to prevent sparks going to the plug.

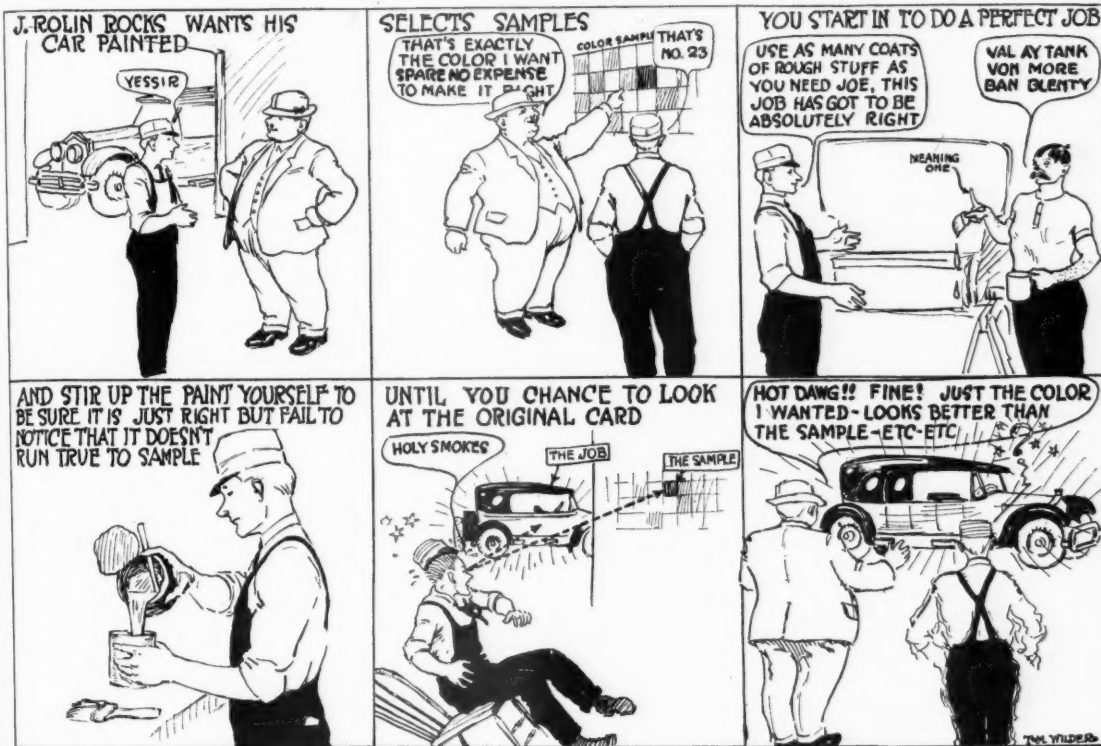
The next time for the engine to fire will be when the interrupter points begin to open which will remove the short circuit from the vibrator and again allow a shower of sparks to go to the proper plug. When the start or run switch is open there will be no connection for current to go through the vibrator and current will then go through the ballast coil and the primary to the interrupter and across the contacts to ground, a single spark being obtained every time the interrupter points open. This appears to be a simple system which could be used on any car where interrupter, condenser and distributor are available.





# SQUEEKS & RATTLES

BUT IT NEVER HAPPENS THAT WAY



OH, OFFICER!

Peck: "What car you buyin' this year?"

Heck: "One of them illegal cars."

Peck: "What kind of a car is that?"

Heck: "A car with all the parts forged."

Don't be afraid to take the road comet's dust. That is better any day than biting it.

THE EYES HAVE IT

Jinks: "I just read in the paper that Atlanta has a blind automobile driver."

Blinks: "Huh! Another town that does not enforce its dimmer ordinance."

The service car driver is the bird we envy. Every hour or so he is invited to some sort of a blowout.

## Coming Motor Events

### Automobile Shows

- Chicago.....Jan. 24-31, 1925  
National Automobile Chamber of Commerce.
- Chicago.....Oct. 11-18  
Second Annual Closed Car Show, Coliseum, under the auspices of the Chicago Automobile Trade Association. L. L. Fest in charge.
- Chicago.....Oct. 21-27  
First National Transportation Show in American Exposition Building, promoted by Motor Truck Industries, Inc. William Hallanger, Manager.
- Chicago.....Jan. 26-31  
Twentieth Annual Automobile Salon.
- Dallas, Texas.....Oct. 11-26  
Annual Automobile Show, Fair Grounds, under the auspices of the Dallas Automotive Trades Association.
- Detroit.....Jan. 17-24, 1925  
Detroit Automobile Show, Detroit Dealers' Association.
- El Paso, Texas.....Sept. 20-27  
Automobile Show, Exposition Grounds, under the auspices of the Automobile Department of the International Fair Association. W. J. Wile and E. C. Heid, General Chairmen.
- Green Bay, Wis.....Aug. 25-30  
Automotive Division, Association of Commerce. W. F. Kerwin, Manager.
- Indianapolis.....Sept. 1-6  
Annual Fall Automobile and Accessory Show, in conjunction with Indiana State Fair, Automobile Building, Fair Grounds. William Jones, Manager.

- Kansas City, Mo.....Feb. 7-14, 1925  
Kansas City Motor Car Dealers' Association Show.
- Milwaukee, Wis.....Aug. 25-30  
Milwaukee Automotive Dealers' Association, Fall Show. Bart L. Ruddle, Manager.
- New York.....Nov. 9-15  
Twentieth Annual Automobile Salon, Hotel Commodore.
- New York.....Jan. 3-10, 1925  
National Automobile Chamber of Commerce.
- Sacramento, Cal.....Sept. 1-10  
State Agricultural Society. C. E. Paine, Manager.
- Toronto, Ont.....Aug. 23-Sept. 6  
Canadian Automotive Equipment Association and the Automotive Industries of Canada. Gib Robertson, Secretary.

### Foreign Shows

- Berlin.....Sept. 26-Oct. 5
- Paris, France.....Oct. 2-12  
Passenger Car and Accessory Show.
- London, England.....Oct. 16-25

### Conventions

- Akron, Ohio.....Nov. 18-20  
Annual Convention of the National Tire Dealers Association.
- Atlantic City.....Oct. 14-17  
Thirteenth Annual Convention National Hardware Association of the United States, Marlborough-Blenheim Hotel.
- Chicago.....Jan. 26-29, 1925  
Eight Annual Convention, N. A. D. A., Hotel LaSalle.

- Cleveland.....Nov. 18-19  
Joint Service Meeting of the Society of Automotive Engineers and the National Automobile Chamber of Commerce.
- Detroit.....Oct. 22-24  
S. A. E. Production Meeting and Exhibition.
- Detroit.....January  
Annual Meeting of the Society of Automotive Engineers.
- New York City.....Jan. 7, 1925  
New York Show, Convention N. A. D. A., Hotel Commodore.
- White Sulphur Springs, W. Va., Sept. 17-20  
Annual Meeting of the Automotive Electric Association, Greenbrier Hotel.
- Wilkes-Barre, Pa.....Oct. 17-18  
Fourth Annual Convention of the Pennsylvania Automotive Association, Hotel Stirling.

### Races

- Altoona, Pa.....Sept. 1  
Altoona Speedway Association—250 miles.
- Colorado Springs, Colo.....Sept. 1  
Pike's Peak Highway—12½ miles.
- Fresno, Cal.....Oct. 4  
Fresno Speedway Association—150 miles.
- Kansas City, Mo.....Oct. 19  
Kansas City Speedway Association—250 miles.
- Los Angeles, Cal.....Nov. 29  
Los Angeles Speedway Association—250 miles.
- Milan, Italy.....Sept. 7  
Monza Track—Italian Grand Prix.
- Readville, Mass.....Sept. 6  
Short races—Jack Le Cain, Promoter.
- Syracuse, N. Y.....Sept. 13  
Horace P. Murphy—100 miles.



# BOOSTING ACCESSORY SALES

**A**N electric cigar and cigarette holder is the product of the Ajax Auto Parts Co., Racine, Wis., and it is distributed through Rex Accessories Sales, Lakeview building, Racine. The device is for mounting on the instrument board of both open and closed cars and consists essentially of a base which fits against the instrument board, and at the bottom it is extended to form a spark catcher and ash tray; it also contains a large heat unit mounted on a mica plate near the top of the base and a spring hinged cover which contains the automatic switch and has as its center a hole through which the heat unit is visible. Wires for connecting the lighter to the electrical system of the car are provided.

When the cover is pressed forward with the finger-tips, the heat unit flashes to a bright red heat and touching the end of the cigar to the heat unit lights it thoroughly, it is said, the operation re-



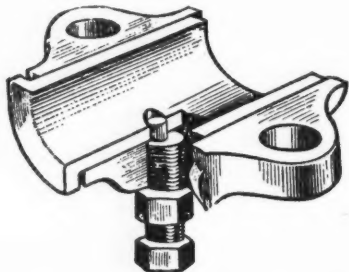
*Electric cigar and cigarette holder*

quiring not to exceed five seconds.

The "Rex Red Devil," as it is known, sells for \$2 in the standard finish of baked black enamel and polished nickel. The De Luxe all-nickel model is listed at \$3. The lighter is made in 6 and 12-volt types.

## C. A. Adjustable Bearing for Fords

When taking out end play in the crankshaft of a Ford engine it is customary to fit a new rear main bearing cap. An adjustable bearing has been brought out recently by the Adjustable Bearing Co., Brazil, Ind., which makes it possible to take up the end play readily. The bearing can be installed by merely dropping the oil pan. As shown in the illustration



*Adjustable bearing for Fords*

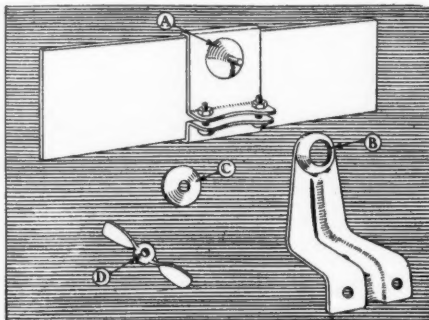
a small boss eccentrically placed on the end of the screw shank moves the bearing proper the required distance in a longitudinal direction. Where it can be locked into position by means of the locknut. This brings the shoulder of the bearing against the fillet on the crankshaft and effectively stops the end play, it is stated. The price of the bearing is \$3.75.

## For Cleaning Out Carbon

Removal of carbon through chemical action is the purpose of a compound now on the market and known as "Auto-Fizik," made by The Auto-Fizik Co., 417 Franklin street, Peoria, Ill. It is claimed that the action of the engine pulverizes the refuse loosened by the compound and the residue is blown out through the exhaust. The compound is applied to the combustion chamber by means of a sprayer. The price is \$1 per 16-oz. can.

## Kreger Rear View Mirror

In order to overcome the objectionable features due to vibration, particularly in the lower priced four cylinder model cars, the Kreger rear view mirror is made with an unusual joint construction in supporting bracket, which allows the mirror to be easily clamped into any position and rigidly held. How it is held securely is made clear by reference to



*Kreger rear view mirror*

the illustration. The mirror, measuring 2 3/4 in. by 9 in. is held by a clamp, a portion of which is made with a semi-spherical seat A, through which protrudes a screw shank. The bracket B fits over A and then the spherical washer C is slipped on, after which the wing nut D is applied. Owing to the slight differences in the surface contours of A and B there is always a spring tension on the parts when the nut D is turned tight.

The nut, therefore, cannot back off owing to vibration or similar cause. The seat A is not directly in the center of the mirror and thereby affords two positions, high and low, of mounting in the car, this being done by merely turning the mirror around. This will take care of interior conditions of all closed as well as open cars. The mirror is made of high grade

plate glass with beveled edges. The backing is both water and scratch proof. Each mirror is packed in a carton with the bracket shown, together with a U adaptor for attaching to open models, no drilling or cutting being necessary. This also has the advantages in that the dealer need not stock two different types, as one type will fit all cars, open or closed.

Standard finish is in baked rubber enamel with all screws and bolts rust-proof. The DeLuxe model is made of brass, nickel-plated, hand polished and buffed. The price is \$2.50 for the standard model and \$3 for the DeLuxe. The mirror is made by Lawrence F. Kreger, 724 First National Bank Bldg., Chicago.

## Master Lock

A padlock which, it is claimed, cannot be hammered open, broken, bent or cracked and whose shackle can be released only by the correct key is announced by the Master Lock Co., of Milwaukee, Wis. It has been named the Master Laminated Padlock because its case is built up of 20 cold-rolled steel plates.



*Master lock*

The padlock is supplied with shackles of 7/8, 1 1/2, 2 and 2 1/2, making it adaptable not only for tire protection but for tool kits, stockrooms and lockers as well.

## Federal Bumperettes

Bumperettes to conform in appearance and construction with Federal Metropolitan Model bumpers, have recently been brought out by the Federal Pressed Steel Co. of Milwaukee.

The heavy eight-inch deep open sheath steel structure has two nickel-plated embossed ribs to match the bumper, the remainder having a satin black finish. These bumperettes are designed to protect the fenders and are securely attached by means of custom-made brackets for the individual make of car.



*Federal bumperettes*

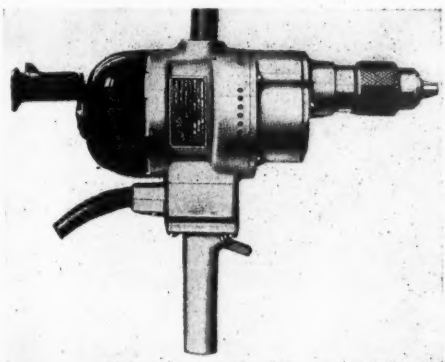


# GETTING MORE OUT of the SHOP

**PROFITABLE** maintenance goes hand in hand with profitable equipment for the automotive shop and the wise proprietor is ever on the lookout for devices which are going to enable him to show a profit by doing the work he has in hand more expeditiously and more economically. Below are described some of the devices which have recently made their appearance.

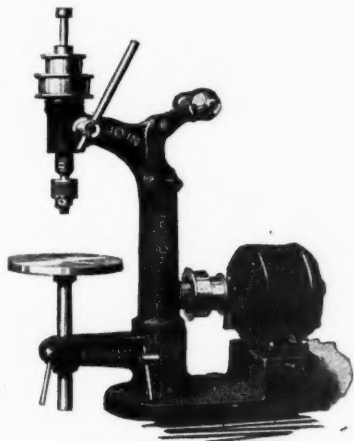
## Van Dorn "Haffinch" Electric Drill

A half-inch portable electric drill for \$60 is offered to the trade by the Van Dorn Electric Tool Co., Cleveland, O. It is designed for heavy or light duty, and, it is said, will drive through the toughest steel. Among the construction features which the manufacturer em-



*Haffinch electric drill*

phasizes in its appeal are hardened gears assembled with ground fit and oversize keys, and ball bearing armature.



*Improved Junior bench drill*

## Manley Piston and Connecting Rod Aligner

Another step in the direction for greater accuracy in the automotive shop is manifested in the new Manley piston and connecting rod aligner which has been brought out by the Manley Manufacturing Co., York, Pa. One of the chief features of this device is the fact that it can be revolved into any position to properly

sight against the light. Also by means of separate brackets the aligner can be attached to the various types of presses made by the Manley company, a desirable feature because a press is essential in straightening a bent rod.

A bench type of aligner also is furnished for those wishing to attach the aligner to the work bench. The aligner is built to operate in both the horizontal and vertical plane and can therefore be used for testing the roundness of a piston with a dial indicator and similar operations. The illustrations show the various ways in which the Manley aligner can be used. Each aligner comes with a piston and rod clamp and 1 1/4-in. arbor. The price of the equipment for use with a Manley press or for bench use is \$22.50.

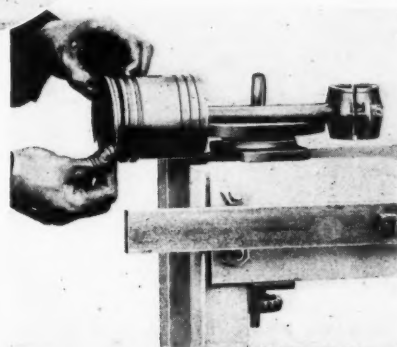
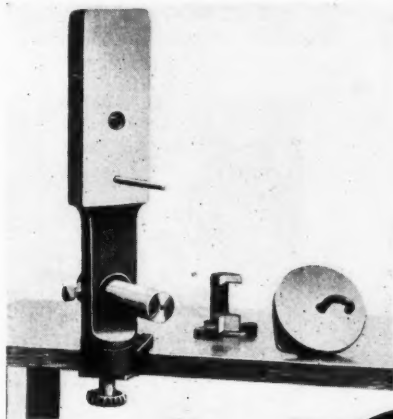
## Improved Junior Bench Drill

Announcement is made of an improved drive arrangement effected with its 10-in. Junior Bench drill by the Buffalo Forge Co., 490 Broadway, Buffalo, N. Y. With

the older design a pinion and gear were employed. In order to obviate noisy operation, a new arrangement was effected, consisting of a motor 1/4 hp., 1,750 rpm., with pulleys keyed to the motor shaft, and it is said that this feature, together with accurate machining of all rotating parts produces a perfectly balanced and quiet-running unit, even at the highest speed.

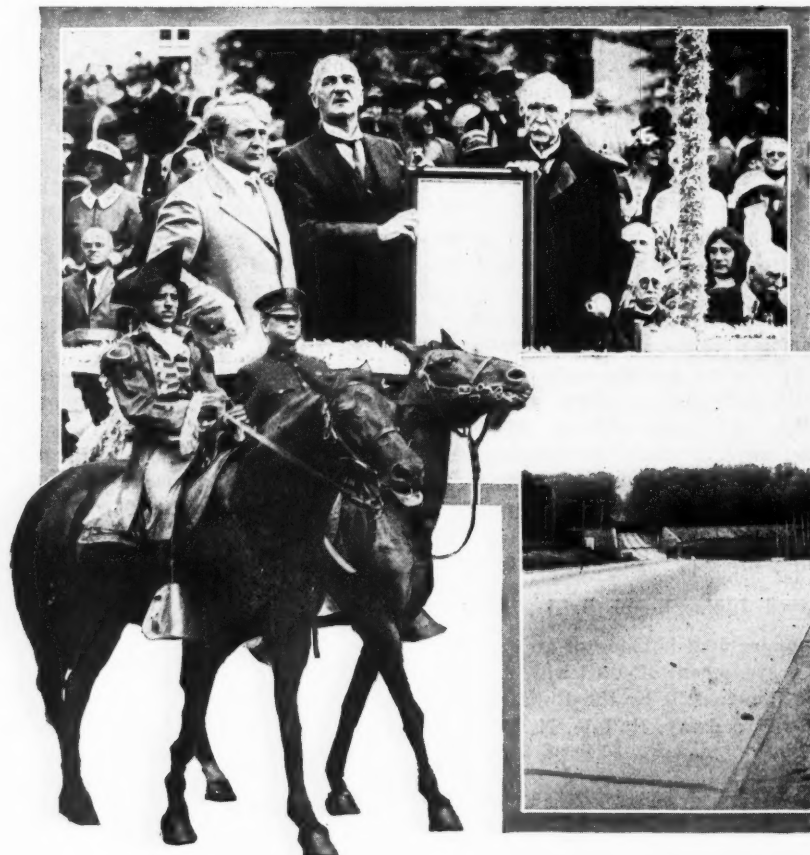
The spindle runs in a large bronze bushing and is provided with a No. 2-A Jacobs chuck. Two speeds are provided, and shifting from one speed to the other is accomplished without using any tools, as the idler works with a snap socket. This eliminates the use of set screws and consequently saves time.

The drill has a substantial cast iron frame and a finished round table moveable in both horizontal and vertical positions and mounted on a strong support. The normal driving speed is 550 rpm., but the manufacturer asserts that it can be driven as high as 3,000 rpm. and still remain in perfect balance.

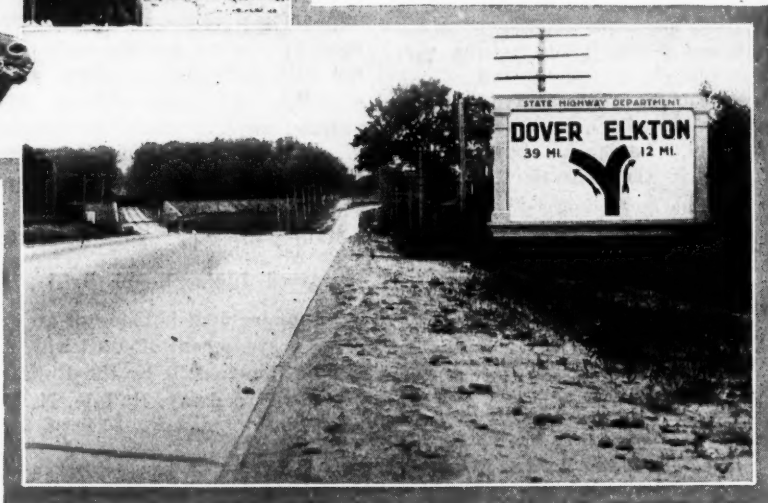


*Several views of the Manley piston and connecting rod aligner showing how it is used. The aligner and piston and rod clamp are interchangeable on the same base*

# MOTOR AGE'S PICTURE PAGES



Revival of the Spirit of '76 was shown in the dedication of the 97-mile concrete highway from Claymont to Shelbyville, Del., presented by Gen. T. Coleman DuPont, (center). The occasion was the 148th anniversary of the night ride of Caesar A. Rodney from Dover to Philadelphia in July, 1776, to cast the vote which made unanimous the adoption of the Declaration of Independence. Benjamin Franklin Cartwright impersonated the revolutionary patriot. At the right is a section of the highway.



The Studebaker Sales Co. of Philadelphia recently drove this brand new stock Light Six 10,000 miles in 20 days of day and night driving without stopping it long enough for the engine to cool, and informs the world that this was done without repairs of any kind



An Egyptian doctor who is still getting good service from an Oldsmobile made nearly 20 years ago says that there are still many miles of transportation left in the old bus

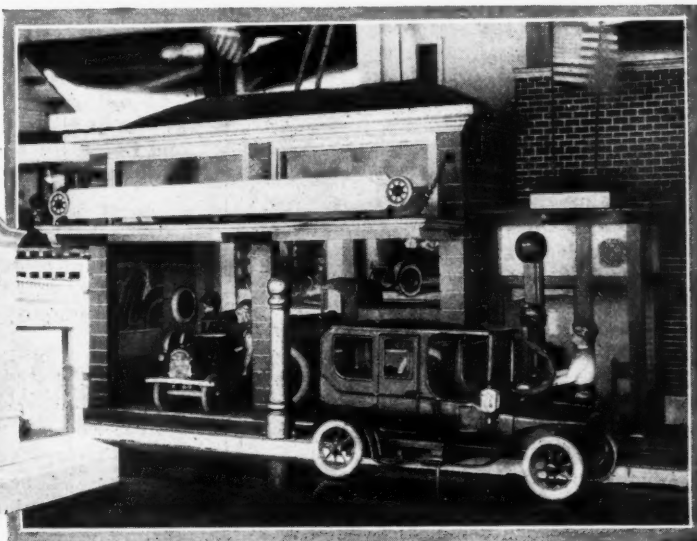
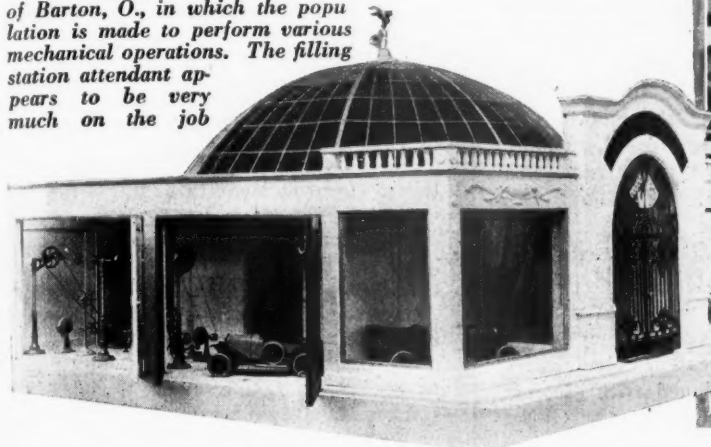


Here is a collection of Flint Sixes driven from the factory branch at Cincinnati, to be sold to West Virginians. Six dealers of Huntington and Charleston ordered them

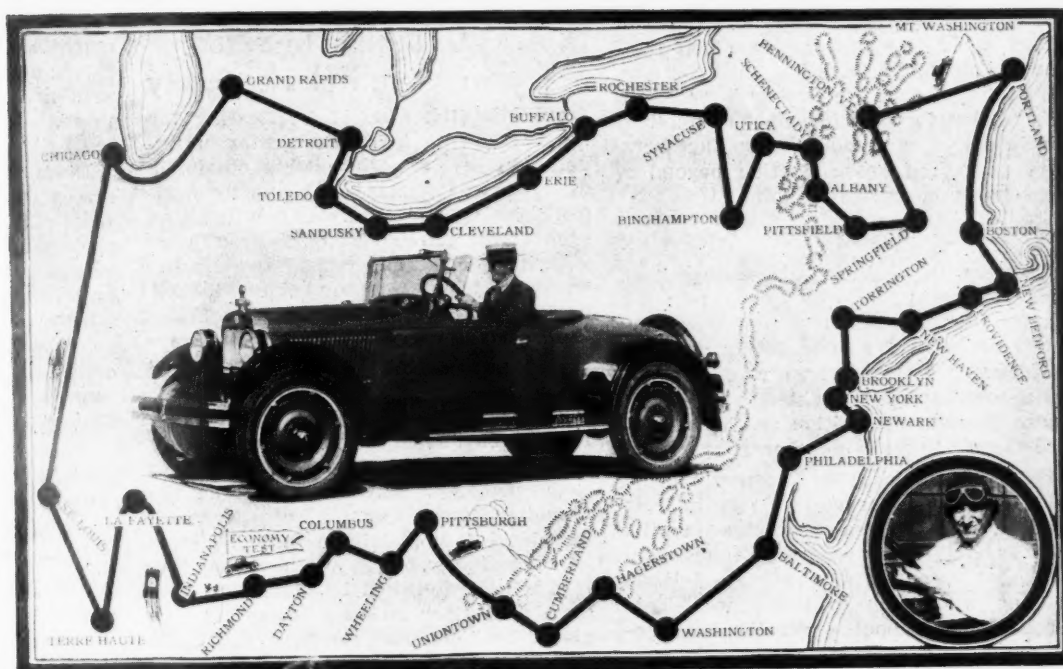


# OF AUTOMOTIVE INTEREST

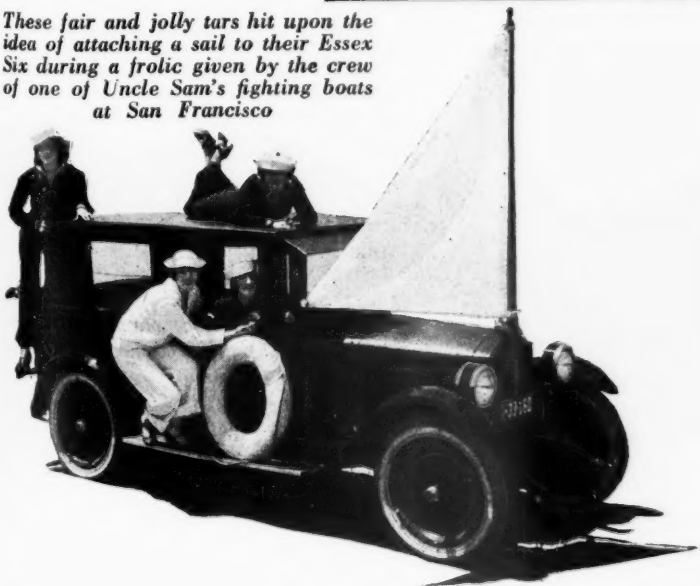
Andre Citroen, the French maker, is in solid with royalty. He recently presented the youthful son of the Prince of Ethiopia, a visitor in France, with a model automobile sales department, garage and spare parts depot of unique design. At the right is a section of a miniature town, the creation of Elton Denham of Barton, O., in which the population is made to perform various mechanical operations. The filling station attendant appears to be very much on the job



Cannon-Ball Baker on another trip—this time for Columbia Motors in "The Tiger" model, to cover 5,000 miles in four weeks



These fair and jolly tars hit upon the idea of attaching a sail to their Essex Six during a frolic given by the crew of one of Uncle Sam's fighting boats at San Francisco



No longer need the housewife go to the store, for this Republic truck brings the store to her



## Better Tone to Retail Sales With Producers Keeping Step

**While Output for August Will Be Higher It Likely Will Not Exceed July Greatly**

NEW YORK, Aug. 11.—Automobile producers are maintaining a slight increase in production as the month advances, with some of them on relatively high schedules. The general run of output throughout the industry at present, however, does not promise that the production mark of July will be overreached by a wide margin. July production mounted somewhat over June, reversing the condition of a year ago when a perceptible drop from the June figure was noted in July of that year.

A better tone has been given to retail sales but producers, as a whole, are manufacturing only as the demand comes and with no object of stocking dealers against any possible increase in sales volume. The farm situation may develop at an early date into an important factor in automobile sales but until there is actual proof that the farmer is entering the market for cars in sufficient number to justify it, automobile manufacturers will not speed up production beyond a reasonably conservative point.

### As to Farmer Buying

Dealers in agricultural sections feel that farmer buying will appear to some extent this month and become more appreciable with the beginning of autumn. Evidence has already been given, though in a comparatively slight measure, of a more cheerful disposition on the part of the farmer to make purchases.

With the majority of the new models placed on the market this month, it is believed that such sales resistance as the new model season offers will be overcome and prospects who have delayed buying will begin to take cars. This should bring about a greater improvement in sales in September with the consequent stepping up of production schedules.

### Work Down Stocks

The relatively low production marks of the last two months and the volume of sales reported have enabled dealers to rid their floors of much of their surplus stock and stand in readiness for the new output. The same conditions have permitted manufacturers to move their warehoused accumulations so that the situation that faced the industry in the spring has been relieved in a marked degree.

Parts makers are operating on the same conservative schedules that govern car production and will reach no higher level than now exists until the allied branches of the industry increase their programs. Replacement parts makers report a good and steady demand for their products.

## Using Motorized Sample Room

SIoux CITY, Ia., Aug. 11.—A "Motor Sample Room" mounted on a Packard chassis has been put in service by the Hornic-More Porter-field Co., a wholesale drug concern of this city.

The motorized sample room is being used by a salesman in lieu of the usual sample cases. Simple trays are mounted in the truck with a capacity equal to twelve large trunks.

The complete sample line is carried, more territory covered, and the line can be shown without tedious unpacking at every store. The car is heated, electrically lighted and equipped with electric fans.

## N. A. C. C. Booklet to School Owners in Rules of Safety

NEW YORK, Aug. 11.—Educating the new car owner is the new mission undertaken by the National Automobile Chamber of Commerce through its Traffic Planning and Safety Committee, and each of the purchasers of the 1925 crop will, it is hoped, find tucked away in the pocket of his new motor vehicle, a little booklet, "Getting the Most from Your Car," edited and published by the committee of which George M. Graham is chairman and John C. Long secretary.

The Chamber expects all of its members to buy sufficient numbers of these booklets to enable them to give one to each customer. Already one maker, the Chandler Motor Car Co., of Cleveland, has decided to distribute these booklets as suggested and it is expected that this lead will be followed by the majority of members. Each maker will buy his supply of booklets from the N. A. C. C. and each copy will carry that maker's imprint.

The chief aim of the booklet of course is to advance the cause of highway safety and its editorial contents have been written with this end in view.

### COMPROMISE IN TAXI WAR

NEW YORK, Aug. 11.—The rate cutting war among the local taxicab companies apparently is at an end, following a compromise. Instead of the 20 cents a mile rate which has been given by several of the operating companies and which created considerable of a sensation, the rivals have decided on 30 cents for the first mile and 10 cents for each additional half mile. This is done because 75 per cent of the business is said to be short hauls of less than a mile each. Yellow Cab, which did not take part in the war, still holds to its 40 cents for the first mile.

## Improved Trade in July Over Preceding Months for Denver

**Business Not to Level of Last Year But Outlook for Further Betterment Is Good**

DENVER, Aug. 11.—Denver dealers unanimously report improved business for July over June and the preceding months of this year. Renewed confidence in the agricultural and industrial situation has encouraged more liberal expenditures. Improvement in business has not quite brought it up to the level of last year at this season, but this has almost been reached and the outlook for continued improvement is good.

Summer visitors are heavy buyers of used cars for mountain trips but the peak of that business has now been passed so that this class of sales has slackened, although still very good. Volume of sales is proportionably good in all grades of cars and buyers of every class appear ready to do business. Labor conditions are satisfactory and show little unemployment so that skilled workmen are able to buy medium and low priced cars. Crop conditions are excellent.

In every way the automobile dealers are encouraged over the situation. Those who wish to forecast so far in advance anticipate normal growth for 1925. Development in all parts of the state is growing rapidly and this has already affected both passenger car and truck sales. Indications point to heavy increase in this line which should have considerable influence on growth of sales. Collections are good.

### SAFETY WAR BEARING FRUIT

NEW YORK, Aug. 11.—The Traffic Planning and Safety Committee of the National Automobile Chamber of Commerce reports 680 automobile fatalities in June, while the traffic toll for the first six months of this year was approximately 2,918. This estimate is based on reports from 217 daily newspapers sent to the committee.

Chairman George M. Graham feels that the work of the committee is bearing fruit, for several of the larger centers report fewer fatalities in June than in May, while there are 25 cities on the honor roll, with no fatalities.

### NEW COMMERCE TRUCK

YPSILANTI, Mich., Aug. 11.—The Commerce Motor Truck Co. has added a new model to its line which is particularly designed to meet the needs of the retail lumberman. The feature of the new truck is a power unloading device which first shifts the body backward and then tips it until the rear end of the load touches the ground. The truck is then started forward and the load slides off the body in a stack thus saving handling. The capacity of the truck is 3,000 to 3,500 feet of mixed lumber or soft wood.

## Motor Vehicle Exports Last Fiscal Year Made New Record

### Shipments Abroad During Twelve-Month Period Greatly Over Best Previous Mark

WASHINGTON, Aug. 11.—A total of 380,016 motor vehicles were exported in the fiscal year ending June 30, 1924, according to figures compiled by the Automotive Division of the Department of Commerce, thus creating a record that excels anything in the past by a large margin.

Of this total 199,135 were shipped from the United States, 67,624 were cars and trucks shipped from Canada by American companies maintaining plants in the Dominion, while 113,257 were foreign assemblies of American cars and trucks, which of course includes the products of such big concerns as Ford, Chevrolet and Overland.

Considering the actual shipments of 199,135 from the United States, a comparison with past years shows that within a single decade annual exports of United States-made motor vehicles have increased about 500 per cent, 1913-1914 recording only 37,198. The previous high beaten by the 199,135 is 178,534 in 1919-1920, the year following the war.

On the basis of a production of 3,980,443 in 1923-1924, the percentage of exports to production was 9.8 per cent in the fiscal year just ended.

#### 142,395 Passenger Cars

Passenger cars constituted the bulk of foreign shipments from the United States during the fiscal period ending June 30, 1924, there being 142,395 shipped. Trucks shipped totaled 27,851 and motorcycles 19,736, while 174 electrics were shipped to foreign countries and 7,676 cars and 1,303 trucks were sent to non-contiguous territories.

Shipments from Canada in the recent fiscal period included 52,149 cars and 15,475 trucks.

Although the automotive experts last year were much in excess of any previous 12-month period in numbers, they did not equal the post-war boom period in value, due to the higher prices commanded during the earlier years. The total value of these exports last year was \$211,843,129, compared with \$248,217,158 in 1919-1920, \$216,349,285 in 1920-1921, and \$36,856,073 in 1918-1914. In this respect, however, the correct measure of demand for making comparisons is that of number of units.

In shipments of parts, accessories, unit assemblies and service appliances, the past period set a new record, these exports being valued at \$77,249,053, as compared with \$66,292,652 in 1919-1920 and \$67,409,570 in 1920-1921. Since prices in these classes have fallen commensurately, the higher total value of these shipments indicates that the increase in volume has been remarkable. A large part of the total amount is represented in parts of vehicles to be assembled abroad.

## To Urge Uniforms for Dry Agents

WASHINGTON, Aug. 11.—Motorists will be protected from confusing prohibition agents with hold-up men if the Association Against the Prohibition Amendment have their way.

The association announces here that it will launch an immediate campaign to obtain necessary legislation to require prohibition agents patrolling highways to wear a distinctive uniform.

This, it is said, would protect innocent motorists from being stopped on the road at the point of a revolver by men in civilian clothes whom they believe to be highwaymen and seek to evade, sometimes with serious results.

## Much Better Demand Reported By St. Louis Motor Dealers

ST. LOUIS, Mo., Aug. 11.—Automobile dealers here report a much better demand for cars lately. There is a much more cheerful tone to the trade in all classes of cars.

The used car situation is good. There is a brisk demand and stocks on hand are normal.

Closed cars continue to feature the buying and while most business is done on the installment basis there have been surprisingly few repossessionings.

Accessory sales are holding up well and this year's business will compare favorably to that of last year.

### ACQUIRES HUPP AGENCY

BIRMINGHAM, Ala., Aug. 11.—J. Mercer Barnett, president of the Packard Motor Co., has purchased the Motor Sales Corporation and will in the future distribute the Hupmobile in Birmingham.

The salesrooms of the Motor Sales Corporation, former owners of the Hupmobile agency, will continue in use for the Hupmobile division of the Packard Company.

### PRODUCTION BY LEXINGTON

CONNEERSVILLE, Ind., Aug. 11.—In the 14 months the Lexington Motor Co. has been operating under a receivership it has produced and sold 814 cars valued at \$1,162,428, it is reported. Service sales for the period up to July 1 amounted to \$235,619. An operating profit of \$17,654 before depreciation and taxes is shown.

### CHANDLER SALESMEN DINE

SPRINGFIELD, Mass., Aug. 11.—R. E. Chamberlin, Chandler dealer at Turners Fall, Mass., recently entertained a large part of Chandler salesmen at luncheon in Turners Falls Inn. Talks were given by factory representatives of Chandler.

## Factories Looking to Foreign Fields for Future Expansion

### Executives of Dodge Brothers and Ford Going Abroad for Surveys of Distant Markets

WASHINGTON, Aug. 9.—That American automobile manufacturers must, in the near future, look to foreign markets for their expansion in production was indicated here when two of the country's important automobile executives spent several days with the United States Bureau of Foreign and Domestic Commerce in a preliminary survey of the world's automotive export markets.

One of these was R. I. Raberge, export sales manager of the Ford Motor Company, of Detroit, who stated that he expected to sail shortly for the Far East, to be gone for several months. The purpose of Mr. Raberge's trip abroad, he announced, is to make a study of world-wide export markets.

The other visitor here was Frank B. Amos, of Dodge Brothers, of Detroit, who passed through en route to San Francisco, where he will sail for Hawaii, Japan, China, India and Australia, to make an economical survey of the world's automotive market.

In discussing the question of foreign export business, Mr. Amos expressed as his belief that the automobile industry must look to foreign markets for its future growth and expansion.

Several days were spent by both factory executives while here in the various bureaus of the United States Department of Commerce and in going over the foreign market possibilities with Percy Owen, chief of the automotive division of the department.

### PAULMAN OPTIMISTIC

CHICAGO, Aug. 11.—The recent meeting of dealers at the Pierce-Arrow Motor Car Company's factory in Buffalo was notable both for enthusiasm and harmony, Harry Paulman, head of H. Paulman & Co., representing Pierce-Arrow in Chicago, told his sales organization at a pep conference. Mr. Paulman's talk indicated that he sees indications for prosperous conditions, telling his sales force that intensive and intelligent labor should produce a large volume of profitable business during the remaining months of the year.

### GET MAXWELL-CHRYSLER LINES

MOLINE, Ill., Aug. 11.—Dean Motor Company, of Moline, long established Velle dealers of this city, have signed contracts to handle Maxwell and Chrysler cars in Moline, Rock Island and three surrounding counties. Addition of the new lines has forced the acquisition of a new building, which will be used for used cars exclusively.

The company will continue the sale of Velle cars.



## July Slow Month for Motor Trade in Los Angeles District

**Number of 1924 Models in Warehouses Reported large, With Strong Used Car Demand**

LOS ANGELES, Aug. 11.—In many respects July in this section was a month of disappointment in automotive merchandising. There was not the anticipated return of buying. Dealers report that new car sales ran behind July last year about the same proportion as was the case for June. That was a loss of 30 per cent on passenger cars and 25 per cent on trucks. The June recapitulation showed that out of 66 makes of passenger cars as measured by last year 37 showed losses, 15 gained, four were the same, four were out of business and 6 new cars came into the field.

The number of 1924 models in warehouse remains large. Various methods are being resorted to in the endeavor to reduce this stock. These methods include the addition of special equipment and numerous accessories which are sold at cost to the dealer.

There is the usual increased trade-in allowance in used cars in order to induce the purchaser to accept 1924 models.

The used car demand is unexpectedly strong. Dealers account for this by a falling off in buying power and the fact there is such a large number of exceptionally good used cars on the market.

### LETTS VISITS PARENT PLANT

NEW YORK, Aug. 11.—Sir William Letts, managing director of the Willys-Overland Crossley Co., Ltd., of Stockport, England, is in this country on his annual visit to the plant of the parent company at Toledo, where he will discuss Overland plans for the coming season with John N. Willys.

The effects of the removal of the McKenna duties on Aug. 1 will not be known until next spring, in the opinion of Sir William. American cars are well established in Europe and the lifting of the duties finds them in competition with Continental makers who are benefited by the abolishment of the tax and who also have the additional benefit of depleted exchange.

Business prospects are good and will improve materially if the European situation clears up, which Sir William expects it will. So far as the British Overland is concerned, prospects are bright, indeed, he says.

### HANDLE FORD AND LINCOLN

ATLANTA, Ga., Aug. 11.—The Ellis Motor Co. has been recently formed at Macon, Ga., by C. R. Ellis, purchasing the Ford and Lincoln business operated there for some years by the Downs Motor Co. The new firm will operate in connection with the Belle-Isle-Street Co., Ford and Lincoln dealers, of Atlanta.

## Many College Men on Firestone Roll

AKRON, O., August 11.—Firestone Tire and Rubber Co. continues to "Add new blood," according to its own statements, to the factory and selling organization through the hiring of graduates from the large universities.

During the week the company published in its own factory and house organ pictures of 33 college graduates of last June who have joined the company since the graduation period.

Dr. Fred E. Clark formerly professor of marketing and economics at Northwestern University School of Commerce at Evanston, has been placed in charge of the Firestone merchandising and analyzing department.

## Pennsylvania R. R. Doubles L. C. L. Motor Truck Service

NEW YORK, Aug. 11.—The Pennsylvania Railroad has doubled its truck service within the past few months and now is operating 20 motor truck units in replacement of local freight trains which previously were operated to carry less-than-carload freight. This involves the use of about 40 trucks. In addition the Pennsylvania has expanded its routes until now its truck service is covering 1,412 miles as compared with 602 last spring.

The State of New Jersey now is completely motorized insofar as the hauling of l. c. l. freight by trucks by the Pennsylvania is concerned. New truck units are being planned and put into operation in other divisions as rapidly as preliminary surveys can be completed.

It is the plan of the Pennsylvania to use trucks later on for terminal interchange of l. c. l. freight in large cities and eventually to expand its movement by truck between stations and terminals into a store-door delivered and collection service.

### MACK REPORTS PROFITS

NEW YORK, Aug. 11.—Mack Trucks, Inc., for the second quarter, reports net profits of \$2,020,309, after the usual deductions as compared with \$1,430,307 in the preceding quarter. This is equivalent to \$6.14 a share earned on the 283,109 shares of common, after allowing for dividends on the first and second preferred stocks, as against \$7.89 a share in the second quarter of 1923.

In the first half the company earned \$3,450,617 as compared with \$4,044,476 in the first half of the previous year.

Assets show \$4,145,989 in cash, \$9,443,894 in receivables and \$16,433,854 in inventories as against \$5,002,247, \$7,693,738 and \$14,733,606, respectively, in the same period last year.

## Detroit's July Sales of New Cars Increase; Trucks Slower

**Most of Improvement for Passenger Machines Found to Be in Medium Price Lines**

DETROIT, Aug. 11.—Sales of new cars at retail in Detroit during July totaled 5,889, an increase from 5,746 in June, and a gain from the 5,617 total set up in July last year. Truck sales during the month were 441, a falling off from the 493 total in June and from the 526 total in July last year.

Most of the gain in July was in the medium priced lines, several of which introduced new models on July 1. Ford car business during the month totaled 2,780 or 47 per cent of the total which is a reduction from June when Ford sales were 51 per cent, but a gain over July last year when Ford sales were 42 per cent.

Low priced lines in July made up 58 per cent of the total and all cars of \$1,000 and under made up 73 per cent. In June low priced lines were 64 per cent and cars \$1,000 and under 77. July last year low priced cars made up 64 per cent and cars \$1,000 and under 70 per cent. Medium priced cars in July made up 24 per cent of the total, as against 19 per cent in June and 26 per cent July last year. High priced sales continued at three to four per cent of the total.

### SPOTLIGHT MAKERS ORGANIZE

LOS ANGELES, Aug. 11.—The Spotlight Manufacturers Association has been formed here by the Clymer Manufacturing Co., Rockford, Ill.; Darsie Manufacturing Co., Los Angeles; Fyrac Manufacturing Co., Rockford, Ill.; Kay Bee Manufacturing Co., Los Angeles, and the S. & M. Lamp Co., Los Angeles.

Ted White of the Kay Bee company has been chosen chairman; Jesse F. Brown, S. & M., secretary; James A. Darsie, Darsie, treasurer, and W. A. Brockway, Fyrac and Clymer, field engineer.

The purpose of the association is to further interest in spotlights by teaching the importance of their use for driving and as a safety factor; also to cooperate with the different states in seeing that spotlights are so made that they will comply with the legal regulations.

A consulting engineer on illuminating will be employed to lecture to dealer organizations, headlight adjusting stations and traffic officers' meetings.

### \$75,000 BUILDING

MINNEAPOLIS, Aug. 11.—The Pence Automobile Co., Minneapolis, has begun building a one story building across from its main service and sales building, at Eighth Street and First Avenue N., for Buick sales. It will cost \$75,000 and will front 100 feet on First Avenue by 18 feet on Eighth Street.

## Cleveland Parts Producers Report Improved Business

**Demands for Quick Deliveries Taken  
to Indicate That Jobbers  
Stocks Are Low**

CLEVELAND, Aug. 11.—Parts makers in this city have experienced a slight increase in business recently. The trend has been upward and credit conditions improved through July. In many cases deliveries are wanted quickly. This is accepted as an indication that stocks are low. A sudden demand for cars on a large scale, it is believed, would catch many unprepared.

The Midland Steel Co., which has factories here and in Detroit and makes auto frames, axle housings, stampings, etc., reported that business has grown better with them in the last 30 days. There has been a steady increase in orders. In some of the departments night shifts have been put to work. Three hundred employes are being added which will bring the force up to 1400.

The Vleck Tool Co., which provides automobile kits, reported that July was better than June. The latter month was the worst from sales standpoints of the entire year. Sales during July were 15 per cent better than they were in June, while the start for August would indicate a 20 per cent increase over July. This company also anticipates better business in September, largely on account of the closed models. Here again the company has had to rush orders for manufacturers, another indication that stocks are low.

The Baker R & L Co., reports that the trend seems to indicate a rise in buying during August.

### USL BATTERY PRICES REDUCED

TOLEDO, Aug. 11.—U. S. Light & Heat Corporation, manufacturers of USL batteries, reports a reduction of approximately 15 per cent of the list price on its automobile batteries. This brings the list price of the standard USL batteries for Ford, Overland, Chevrolet, etc., to \$20.50, and the same size in the Frontier line to \$15.50.

This drop in price is partly due to reduction of the excise tax and lower cost of lead, but is largely due to improved manufacturing facilities which permit more economical production, says the announcement.

Reports received from USL distributors indicate a definite improvement in sales and general business conditions and the outlook for fall business is considered exceptionally good.

### HUPP PRICES RAISED

DETROIT, Aug. 5.—Hupp Motor Car Corp. has increased prices \$25 on all models except the four passenger coupe. Several items of equipment and special finishes which were formerly optional are made standard under the new prices.

## August Is Jinx at Crossings

WASHINGTON, Aug. 11.—August is the danger month for reckless motorists who like to try to beat a train to a grade crossing, according to figures supplied by the Interstate Commerce Commission to the Statistical Committee of the Conference on Street and Highway Safety.

Studies of grade crossings casualties by months for 1921, 1922 and 1923 show that the motorist loses the race more often in August than during other months of the year.

In 1921 during August there were 229 persons killed and 512 injured in grade crossing accidents; in August, 1922, the killed numbered 213 and the injured 535 and for August, 1923, the increase was consistent, 233 being killed and 570 injured.

For the entire year 1923, the I. C. C. figures show, 2,268 persons were killed and 6,314 injured in grade crossing accidents.

## Essex Six Output for 1924 Is Already Past 52,000 Mark

DETROIT, Aug. 11.—Production of Essex sixes so far this year is in excess of 52,000, the Hudson Motor Car Co. reports, a total which is now 10,000 ahead of the total production of Essex fours in 1923.

Essex output last year was one car short of 42,000. Eighty per cent of this business or more has been in the coach model the company reports.

A statement by the company summarizing conditions generally says:

"Business affairs in general are encouraging. The whole business structure is sounder, with better crop prices, more men employed and with improved markets for all goods and labor. We feel that we are amply justified in expecting a better second half of the year than we had the first. Business rests on confidence and sentiment is now more optimistic than earlier in the year."

## Ownership Growth Is Shown in State's Study of Records

NASHVILLE, Tenn., Aug. 11.—The State Department of Highways has completed a study of the increase in automobile and truck registration in Tennessee. In 1913 there were only 10,000 motor vehicles in Tennessee. At the end of 1923 there were 173,365.

In 1913 there were 233 persons to each motor vehicle. In 1923 there was one motor vehicle to each 14 persons. Information is available to June 30, 1924, which shows an increase of 30 per cent over June 30, 1923.

## Charges Oil Companies Aided Scheme to Fix Gas Prices

**File Cease and Desist Order Against  
Corporations and Retail Deal-  
ers in Tampa**

WASHINGTON, Aug. 11.—The Standard Oil Co. of Kentucky, the Gulf Refining Co., and the Texas Co., are named in a cease and desist order issued by the Federal Trade Commission in connection with the sale of gasoline. The Tampa Retail Gasoline Dealers Association, its officers and members, F. T. Hurner, F. D. Jones and H. G. Thompson, all of Tampa, Fla., are also named in the commission's order. The three individuals named are respective representatives in Tampa, Fla., of the three oil companies.

The commission found that the Tampa Retail Gasoline Dealers Association supported by the three oil companies, undertook to organize all retail gasoline dealers of Tampa, Fla., into an association for the purpose of having such dealers agree to sell gasoline on a four-cent per gallon margin of profit. Dealers who were not willing to retail gasoline at the prices suggested by respondents were informed that unless the price so fixed was adhered to, such dealers would be unable to buy gasoline from either the Standard Oil Co. of Kentucky, the Gulf Refining Co., or the Texas Co. The findings state that the three oil companies aided the committee in the organization of the association by refusing to sell gasoline to retail dealers who did not conform to the four-cent margin or by not refusing to sell such dealers, but by rendering insufficient service.

The findings further state that respondents' acts caused the public of the city of Tampa and vicinity to be deprived of competition in the sale of gasoline by retail dealers, and further to pay a higher price for gasoline than had been paid previous to the fixing of prices by respondents.

### PLAN NEW ENGINE MODEL

EAST MOLINE, Ill., Aug. 5.—Pending the engineering work and the announcement of a new model, production of the Yellow Sleeve Valve Engine Works, Inc., is slightly below normal, according to the announcement of Louis Ruthenberg, general manager. Approximately 300 are employed at the engine works at the present time, although increases in production and shipments are expected about September 1.

### DECIDE AGAINST GROUP SHOW

MADISON, Wis., Aug. 11.—The Madison Automotive Dealers Association has decided against staging a group motor exposition in connection with the Dane County Fair at Madison. Individual dealers will make exhibits, but no attempt will be made to operate an organized show, as in several former years.



## Unofficial Survey Puts July Output Appreciably Over June

**Estimate Upholds Predictions That Increased Production Would Follow Vacations and Inventory**

DETROIT, Aug. 11.—As closely as can be figured from an unofficial survey made by representatives of the Class Journal Co., production of cars and trucks during the month of July ran from 7 to 8 per cent ahead of June. On this basis the output for the past month should approximate 262,150. Final figures cannot be had until the N. A. C. C. completes its estimate.

The results of the survey bear out predictions of the prophets who were looking for increased outputs following the period of vacations and inventory taking and they were not disappointed. There was nothing spasmodic about the increase, the advance in production coming gradually and in response to dealer demands. Purposely the builders marked time until the dealers reduced stocks and called for more cars and this policy seems to have been the right one.

With the advent of new models there has been increased activity among the manufacturers, which perhaps helps account for the advance of something like 17,150 in July, although there are those who declare that some of the popular makes have been speeded up to meet the quickened demand.

July, 1924, showing an advance over its predecessor reverses conditions of the same period last year, when June had a total of 378,575 to July's 328,063.

## Moon Motor Earnings Slightly Down for First Half of Year

NEW YORK, Aug. 11.—Earnings of the Moon Motor Car Co., of St. Louis for the first half of this year were slightly less than in the corresponding period of 1923—\$401,240 as against \$419,400, equivalent to \$2.23 a share on the 180,000 shares of no par capital stock outstanding. The company states, however, that, judging by present business conditions, the third quarter will be the best of the year.

In the first half net sales totaled \$5,375,192, the operating profit being \$391,146, with miscellaneous earnings of \$72,715. Out of the net earnings of \$463,861 comes \$62,621 for taxes.

## CHANDLER PAYS BONUS

CLEVELAND, Aug. 11.—The ninth consecutive annual bonus has been paid to 1,000 factory and office workers of the Chandler Motor Car Co., \$200,000 being required for the purpose. The minimum, 10 per cent of the employee's earnings during the past 12 months, was paid to those in the company's employ one year or less. For each additional year an additional 1 per cent was added, 13 per cent being the maximum.

## A. A. A. Reinstates Ralph DePalma

FRANKLIN, Pa., Aug. 11.—The Contest Board of the American Automobile Association has reinstated the veteran race driver, Ralph DePalma, imposing a fine of \$3500 and securing from him a guarantee that he will not race on other than A. A. A. tracks within a year.

DePalma "went outlaw" last January, racing for George Bentel at Ascot Park, Los Angeles, whose meets are not sanctioned by the A. A. A. since then DePalma has experienced a change of heart and recently applied to Chairman Kernerdel for reinstatement.

California is arranging a circuit of seven cities, including both dirt and board tracks, and DePalma will follow this circuit. His reinstatement also means the competition of Fiat in California. DePalma having control of the Fiat team, made up of Nazzaro and Bordino, which is expected soon. In addition Fiat's 300 hp. racing car which has been breaking European straightaway records, will be sent over, it is said, and DePalma will try for World's records in it on the dried mud lake bed near Los Angeles over which Tommy Milton made such sensational time recently.

## CLEVELAND DISTRIBUTORS

CLEVELAND, O., Aug. 11.—New distributors, appointed for 1924, are announced by the Cleveland Automobile Company, as follows:

Coffin-Cleveland Motor Co., Brighton, Mass.; Butler Auto Supply Co., Butler, Pa.; Baxter Auto Sales, 8135 Cottage Grove avenue, Chicago; Victory Motor Sales Co., Fresno, Cal.; Walter M. Clark, New Bedford, Mass.; Cleveland Motors of Dallas, 718 South Rosemont avenue, Dallas, Tex.; Miller Motor Co., Phoenix, Ariz.; Miller-Norton Sales Co., 1107 East Pine street, Seattle; C. K. Cattanch Motor Sales, Lakewood, O.; Lakewood Sales & Service, Lakewood, O.; Benson Motor Co., San Jose, Cal.; R. A. Willard Corp., 1544 Hertel avenue, Buffalo; West Garage, Haverhill, Mass.; Angel City Motors, Los Angeles; Camp Motors, Inc., 116 North Western avenue, Los Angeles; Moline Auto Sales Co., Moline, Ill.; Harry F. Phillips, San Pedro, Cal.; Market Street Garage, Parkersburg, W. Va.; The L. E. Gibson Motor Co., Clarksburg, W. Va.; Holland & Pierce, 834 South Vermont avenue, Los Angeles; A. L. Johnston, 2325 Central avenue, Los Angeles; Roy I. Turley, Kokomo, Ind.; Gross & Meherlich, Wilkinsburg, Pa.; A. Ralph Juul, 7921-25 South Chicago avenue, Chicago; Geo. Ridge & Sons, Elmira, N. Y.; McKinney Motor Co., Topeka, Kan.

## R. C. IVES JOINS DURANT

NEW YORK, Aug. 11.—R. C. Ives, formerly plant sales manager for the Chevrolet Motor Co., at St. Louis, has been placed in charge of the wholesale office of Durant Motors, which has been established in the Liberty building, Pittsburgh, which will have charge of wholesale sales of the Star and Durant in western Pennsylvania, southwestern Ohio and the western portion of West Virginia.

## 1,113,538 Cars and Trucks Sold by Ford in Half Year

**Figure in United States About 15 Per Cent Greater Than Best Previous Records**

DETROIT, Aug. 7.—Final figures by Ford Motor Co. on total sales of cars and trucks in the first six months of the year fix the total at 1,113,538.

Sales in foreign countries totaled 86,560 which deducted from the total figures gives a total of 1,026,978 as sales in the United States. The figure in the United States is approximately 15 per cent larger than the best previous record of 893,883, which was made in the first half of last year.

Sales of Lincoln cars, which are not included in the above totals, nor are tractors, were 4,015 in the United States, an increase of 42 per cent over the best previous six months' period. Lincoln sales in foreign countries were 36.5 per cent over the record for the six months of last year.

Tractor sales continued at practically the same rate as in 1923 with a total of 43,234 deliveries. The June, 1924, tractor sales rate was 30 per cent greater than June last year, however, the company reports, indicating increasing farm prosperity. Foreign tractor sales totaled 6,419, an increase of 43.7 per cent over the former high record.

## Moline Plow Co., Held Solvent, Ready for Implement Making

MOLINE, Ill., Aug. 11.—Outlook for the future of the Moline Plow Company is "conservatively optimistic," according to a statement by R. W. Lea, vice-president of the organization, in a recent interview.

The company was declared solvent in the course of the initial receivership hearing in Peoria on July 30.

Annual inventory of the plant has been completed and operations will be resumed immediately, said Mr. Lea. Operations are to be confined to implements, all other lines, including automotive units that have been discontinued, to be liquidated as rapidly as possible. For this purpose the company formed the corporation of Johnson, Lea & Co. with offices in Chicago.

## EXPECT BUSINESS BRACE

MOLINE, Ill., Aug. 11.—Improvement of business for the Moline Body Corp. is expected within the next three months, according to E. H. Wilson, general manager of the organization.

"We expect a decided increase soon," said Mr. Wilson, "and the feeling seems to be general in this city."

While the company's production is running somewhat below normal it is employing about 400 men and averaging around 30 bodies daily. It makes bodies for various motor car companies.

## Shake-Up Shown in Standing of American Markets Abroad

### Australia and Japan Best Buyers of Cars and Trucks, Canada Going to Third Place

WASHINGTON, Aug. 11.—Figures just compiled by the Automotive Division on leading foreign markets for American automotive vehicles show numerous changes during the first six months of 1924 as compared with the entire year 1923.

The most noteworthy fact brought out by the figures is that Australia and Japan remained respectively the best markets for passenger cars and trucks. In both, however, the export sales of American vehicles during the first six months of this year show a very large increase. Australia has bought 20,694 passenger cars in the first half of this year, as compared with 25,817 in the entire twelve months last year. Japan has taken 3,007 trucks so far this year as against 5,111 in 1923.

Other leading markets have changed their positions notably. In passenger cars alone and not considering trucks, Argentina has risen from sixth to second place taking almost as many in six months this year, 5,827, as during all of 1923, 6,645. Canada has dropped from second to third place. British South Africa has risen from tenth to fourth; Cuba, Japan and Brazil have improved their positions in the export table and Mexico, United Kingdom and Spain have fallen somewhat.

In trucks, Sweden has risen from fourth to second and Australia remained at third. Canada remained in fifth place; Cuba, Mexico, Uruguay, Chile and the Philippine Islands have risen and Spain has receded.

#### PHILLIP H. BROCKMAN ILL

ST. LOUIS, Aug. 11.—Phillip H. Brockman, president of the De Luxe Automobile Co., St. Louis Oldsmobile distributors, has been ill in Boston, having been stricken while on a vacation trip. At last report he was said to be doing nicely.

#### APPOINTED GENERAL MANAGER

KNOXVILLE, Tenn., Aug. 11.—The Vester Motor Co., of Knoxville, Tenn., Ford and Lincoln dealers, announces the recent appointment of B. N. Williams, identified with the automobile business in Knoxville for several years, as general sales manager for the Vester company.

#### VELIE EXECUTIVE IS VISITOR

ST. LOUIS, Aug. 11.—H. S. Lord, general sales manager of the Velle Motor Corporation was a visitor in St. Louis at the Benjamin Motor Co., St. Louis Velle distributor. He expressed optimism regarding the business outlook.

## 10-Millionth Ford Ends Jaunt

SAN FRANCISCO, Aug. 11.—Frank Kulick, driving the Ten-Millionth Ford, completed his transcontinental journey over the Lincoln Highway July 29. Starting from New York June 16, Kulick made the trip of nearly 4000 miles with but one minor adjustment and with no mechanical difficulty of any nature, he reports.

From here the car has been routed up the Pacific Coast to Portland and Seattle, from which point it will be shipped by boat back to San Francisco, then driven to Los Angeles. From this last point it probably will be driven back to Detroit over a southern route.

## Highway Freight Facts Are Sought By Bureau of Roads

CHICAGO, Aug. 11.—An appraisal of various important commercial centers of the United States as highway freighting pivots will be undertaken by the division of highway economics of the United States Bureau of Public Roads. This work will be started with a survey of highway freighting centering at Chicago which has been ordered by Prof. J. G. McKay, chief of the division.

Prof. McKay expects the Chicago survey to require about eight months in which time information will be gathered as to from where this community draws its highway freight, what this freight is composed of, ownership, its value, what routes are used most commonly as well as what routes are more commonly avoided, and on other phases of the subject. An interesting phase of the inquiry will relate to the extent to which railroads receive freight from short haul trucks.

Among the cities to which this study will be extended in the near future are St. Louis, Detroit, Indianapolis and Milwaukee. Prof. McKay will supervise the start of the Chicago survey. He has also been overseeing phases of the joint government and county survey of highway traffic here.

#### MOTOR TO FACTORY

ST. LOUIS, Aug. 11.—A. E. Spellberg, president, and W. M. Venner, secretary and service manager of the Franklin Motor Car Co. of St. Louis, have departed on a motor trip to the factory at Syracuse, N. Y.

#### BALLOONS FOR MOTORCYCLES

AKRON, O., Aug. 11.—Balloon tires for use on motorcycles are now being produced by the Goodyear Tire & Rubber Co. The size is 27x3.55, a change over being required from regular 22 and 21-in. wheels to 20-in. wheels.

## Goodyear Status Compares Well With That of Last Year

### Akron Rubber Company Reports Net Earnings for First Six Months of \$4,173,120

AKRON, O., Aug. 11.—Announcement by the Goodyear Tire and Rubber Co. of net earnings for the first half of the present year of \$4,173,120 with net operating profits for the period of \$6,791,353 confirms unofficial reports regarding this company's business.

The earnings during the first half cover half dividends on the prior preferred stock, the management stock, that of the old 7-per cent preferred stock and leaves slightly over 25 cents a share on the common stock according to brokers' tabulations here.

The earnings for the period on \$55,412,054 worth of business done compare with net operating profits of \$6,314,318 on sales amounting to \$55,439,631 reported during the first half of 1923 and with net profit after all charges of \$5,865,848 out of operating profits of \$12,078,730 on sales of \$106,026,109 reported for the entire year of 1923.

The company's business and profits are therefore almost identical with those for the past year and promise to be in this same status at the end of the year.

#### Assets and Liabilities

Current assets, which show a relation of 11.3 to one, according to President G. M. Stadelman's report, which at the end of 1923 amounted to \$56,584,789 are now reported at \$55,905,149 while current liabilities which at the end of the past year amounted to \$7,612,707 are now reported at \$4,828,288.

Inventories which at the end of the past year amounted to \$28,355,175 have been reduced approximately \$7,000,000. Funded debt of the company has been reduced, according to the new statement to \$49,000,000 as compared with \$51,250,000 reported as of December 31, 1923. The new surplus account is now \$15,369,256 as compared with \$11,786,136.

#### F. E. MOSKOVICS RESIGNS

SYRACUSE, N. Y., Aug. 11.—F. E. Moskovics has resigned as vice-president of the Franklin Automobile Co., owing, it is understood, to differences in regard to sales policy with H. H. Franklin. Mr. Moskovics will continue to manage the affairs of the Stevenson Gear Co. of Indianapolis for which he was appointed last November. He is living at Cazenovia, N. Y.

#### CHANGE IN MANAGEMENT

ST. LOUIS, Aug. 11.—Frank J. Koch, formerly wholesale manager, has been appointed general manager of the St. Louis Flint branch to succeed Robert S. Kelly who resigned. Z. A. Barker will continue in his capacity of retail sales manager.



# Reports Show Big Run of Trade-Ins

## 25 Per Cent or Less Trade-In Business By But Few Dealers

### N. A. D. A. Survey Shows Old Car Figures in Great Majority of Sales in Most Instances

ST. LOUIS, Mo., Aug. 11.—Figures made public by headquarters of N. A. D. A. show that 65 per cent of the automobile dealers in the United States based between 50 and 100 per cent of new car sales on a trade-in of an old car during the first six months of 1924.

The figures are a part of a national survey which has been conducted for nearly three years to show the enormous losses suffered by automobile dealers in handling used cars. These losses have totaled millions of dollars.

However, there is still some business being done which does not involve a trade-in, but the amount is extremely small, for only 8.7 per cent of the dealers report that 25 per cent or less of their business during the six months period involved the trading in of an old car. From 25 to 50 per cent of the business was on a trading basis for 24.01 per cent of the dealers, from 50 to 75 per cent of the sales involved trade-ins for 29.15 per cent of the dealers. These last two are the largest groups. Nearly nine per cent of the dealers reported that their business was 75 to 80 per cent trading. Only 6.53 per cent had a 80 to 85 per cent trading and 11.41 per cent found that 85 to 90 per cent of sales involved trade-ins. In the last group 11.28 per cent of the dealers said that 90 to 100 per cent of their sales necessitated a used car allowance and a number of the dealers reported 100 per cent of their sales involved trade-ins.

## Safety Education Would Save Lives of Ten Thousand Children Yearly, Agree Conferes

WASHINGTON, Aug. 11.—Ten thousand lives of school children could be saved annually by closer attention to education along safety lines, it was agreed at a round table discussion of the committee on education of the Joint Conference on Street and Highway Safety. The meeting was held in the Department of Commerce and was one of the series of gatherings of experts through whose advice Secretary Hoover is seeking the best means of reducing the terrific loss of life and limb due to traffic accidents. The work of the committee, as a result of the discussion will be divided into three groupings. One will deal with what is being done in public and private schools, normal schools and colleges and how better methods can be devised. A second will emphasize the special train-

## Church and Theater Will Be Garages

CEDAR RAPIDS, Ia. Aug. 11.—It's all grist that falls before the motor mill. A theater here has been opened as a public garage and a day's journey away, in Illinois, a church is being remodeled to serve as showroom and garage.

Green's Opera House in this city, built in 1880 and once pride of the state, has been remodeled, new steel structure put in, new walls built, and floors extended to make a three-story structure for C. P. Spencer, veteran auto dealer. The garage has 25,200 square feet of space.

At Cambridge, Ill., an old Congregational church has been secured by the White Motor Co. to be remodeled as a salesroom and garage. One corner will be transformed into a gas filling station and a new front built.

## NEW SEAPLANE RECORD

WASHINGTON, Aug. 9.—Flying in the famous CS-2 triple duty plane, Lieuts. Frank W. Wead and John D. Price were in the air for 15 hours and 19 minutes here recently, covering 1050 miles and bettering their first nonstop seaplane duration record by nearly two hours. The two old records for duration and distance, both set by the same pilots flying the same plane were 13 hours, 23 minutes and 15 seconds for duration and 963.12 miles for distance.

ing of groups of professional drivers such as employees of taxicab and trucking companies. The third will be devoted to questions of education as applied to the general public with special attention to subjects of educating drivers, pedestrians and of stimulating the work of community safety organizations.

William W. Cloud, president of the Yellow Cab Company told how the taxicab company with which he is connected had promoted a drivers' school with particular emphasis on safe driving and outlined the methods used. He also told what Baltimore is doing in its safe drivers' school, and of the increasing interest in this plan. He emphasized the need of every owner of a fleet of commercial automobiles giving attention to safety education.

## Average Used Car Selling Price for Half Year \$252.17

### Figure for Second Quarter as Found by N. A. D. A. 13.98 Per Cent Under First

ST. LOUIS, Mo., July 28.—The average selling price of 2,393,700 used cars sold by dealers in the first six months of 1924 was \$252.17, according to the National Automobile Dealer's Association which has completed compilation of figures for the second quarter of the year. The average selling price for the first three months of 1924 was \$293.14.

Comparison of the two figures shows that there has been a decrease in the average selling price of used cars of 13.98 per cent which is taken as a reflection of the effect of changing models of new car lines and some price changes that have been made.

The trend of used car selling price for the last 18 months has been carried steadily downward from \$312.00 in the last quarter of 1923.

This has forced the automobile dealer to reduce the prices which he had been allowing on the used car according to the N. A. D. A. which points out, however, that owners of these old cars have been prompted by a mistaken sense of economy and by shopping around encouraged dealers to bid higher for the old car than was justified. Car buyers generally are beginning to understand that if they base their selection of a new car solely upon the highest bid for the old car, they very often will later be sorry of their new car choice.

## GROFF TO NEW FIELD

ST. LOUIS, Aug. 11.—William Groff who has been connected with the automobile industry in St. Louis for the past eleven years, five years with the Hudson-Frampton company and six years with the Tate Motor Car Co. has given up his automobile connection to become secretary and general manager of the Kleen Heat Sales Co., an oil burner concern.

Mr. Groff was presented with a gold belt buckle by the employees of the Tate Motor Car Co., upon his leaving the concern.

## ANOTHER BAD CHECK

Goble Motor Sales Co., Casey, Ill., writes to MOTOR AGE that it recently cashed a worthless check for a man giving the name of J. B. Wilson and claiming to be a service representative of the Moline Tractor Co. This man was about six feet in height and appeared to be about 23 years old. He drove an old Ford roadster. The check was drawn on the First National Bank of Converse, Ind.

## First of Great Jordan Line Eight Displayed by Dealers

### Prices on Company's New Model Run Approximately \$500 Higher Than Current Types

NEW YORK, Aug. 11.—The first of the new Great Jordan Line Eight models appeared in dealer salesrooms last week. The model designation of the new line is A and the present models will be continued without change in any way.

In exterior appearance, the new model is distinctly Jordan but the hood and radiator are, of course, changed to some extent. The radiator and hood are both higher than before and the hood is longer to accommodate the line eight engine.

Prices on the new model are only slightly in excess of those of the current line, roughly \$500 higher. While the car seems larger than before, yet the wheel-base is only 126 in., and the weight of the sedan is but 3585 lb. with complete equipment for the road.

The engine has eight cylinders, in line, with a bore of 3 in. and stroke of  $4\frac{3}{4}$  in. The N. A. C. C. horsepower rating is 28.8. The valves are all on one side of the engine, L-head type and a chain front end drive system is used as in previous models. Pressure lubrication is used, the crankshaft being hollow and delivering oil to the main and connecting rod bearings. The crankshaft is  $2\frac{3}{4}$  in. diameter and is supported in five bearings. The firing order is 1-6-2-5-8-3-7-4.

#### Electrical System

The electrical system is American Bosch, starting, lighting and ignition. The units are divided, the starter being on one side and the generator on the other. The carburetor is a Stromberg and is provided with a United engine air cleaner.

In general, aside from the engine, the units of the car are of the same character and design as on previous models, but revisions of the design have been made to take care of increased weight, power and torque. The rear axle is a Timken unit with gear reduction of 4.54 to 1.

Hydraulic four-wheel brakes of the Lockheed type are standard equipment on all models as are balloon tires 6.20 on 20 in. rims.

The finish is either Crane-Simplex two-tone gray or Duco dark blue, the sport models in thistle green.

Prices of the Great Jordan Line Eight	
5-pass. touring car.....	\$2575
2-pass. runabout.....	2575
5-pass. brougham.....	2875
4-pass. Victoria.....	2775
5-pass. sedan.....	2975

#### CLOSES FOR INVENTORY

DETROIT, Aug. 9.—The Ford Motor Co. of Canada, Ltd., closed for inventory until August 11, though operations may resume earlier, according to business developments.

## Safety School for Truck Drivers

BALTIMORE, Aug. 11.—In an effort to reduce the number of accidents involving motor trucks in this city, the Baltimore Safety Council plans to inaugurate a safe drivers' school this fall for the instruction of truck drivers.

A similar school for passenger car drivers was held last fall and will be reopened in October.

The number of deaths due to trucks during the first six months of 1924 totaled 20, as compared with 11 for the same period of 1923.

## Argentine Amateur Wins First Race on New Miramas Track

PARIS, Aug. 11.—Martin de Algaza, an Argentine amateur, driving a six-cylinder 300-cu. in. Sunbeam, won the opening race on the new speedway at Miramas, near Marseilles, by covering 100 miles in 1 hour 5 minutes 40 2-5 seconds. Arthur Duray, driving a 91-in. Belgian d'Aoust, was second in 1 hour 11 minutes 18 seconds, followed by Albert Guyot on a Guyot Special fitted with a Duesenberg engine, 30 seconds later. A 122-in. Bugatti was fourth and a 91-in. Chiribiri finished fifth.

The race was an invitation event to mark the opening of this new three and one-tenth mile concrete track, for the construction of which Paul Bablot is largely responsible. A big 500-mile race for 122-in. cars is on the program for September 14 and on the same day a 300-mile stock car race will be run.

#### STUDEBAKER DEALERS GATHER

ST. LOUIS, Aug. 11.—Fifty-nine Studebaker dealers in the St. Louis trade territory of eastern Missouri and southern Illinois were entertained by the St. Louis branch of the Studebaker corporation at a luncheon at the American Annex hotel on Tuesday of last week. Clarence Van Scoyoc, assistant branch manager, presided. After the meeting the dealers drove away 59 new Studebakers.

#### OFFICERS ELECTED

ST. PAUL, Aug. 11.—The new Motor Power Equipment Co., which is handling and demonstrating Ford and Fordson automobiles and equipment at University and Cromwell avenues in the Twin City Four Wheel Drive building, has elected as officers: President, C. W. Gordon; vice-president and manager, A. W. Logan; treasurer, E. B. Ober; secretary and assistant manager, Harry G. Barnes; additional directors, William Hamm, S. W. Dittenhoffer, L. H. Brittin.

## David Averill in Charge of Ajax Motor Co. Operations

### Dort Executive Resigns to Become Vice-President of New Nash Subsidiary

KENOSHA, Wis., Aug. 11.—An important step in organizing the Ajax Motor Company, of Racine, for operation was taken Monday when the company's board of directors, meeting in Kenosha, elected David Averill to serve in the capacity of vice-president and general manager.

Such is the substance of an announcement made by C. W. Nash, president of the Ajax company and head of the Nash Motors Company which recently formed the Ajax Company as a subsidiary.

Mr. Averill recently resigned as vice-president and general manager of the Dort Motor Car Company, of Flint, to accept the new duties in Racine. He returns, by this move, to association with Mr. Nash with whom he was associated for 12 years when Mr. Nash was in charge of the Durant-Dort Carriage Company. Mr. Averill joined the old carriage company soon after leaving school, beginning in the shipping department and rapidly working his way to the top ranks. When Mr. Nash resigned the management of the carriage company to accept the presidency and general management of the Buick Motor Car Company, Mr. Averill stepped into the vacated office. Later he took charge of manufacturing operations of the Chevrolet Company's Detroit plant and subsequently assisted Mr. Dort in organizing the Dort Motor Car Company, serving that organization as vice-president and general manager until he resigned to take executive charge of the new Ajax Company.

In speaking of the appointment Mr. Nash said: "we have procured for this important place one of the best fitted men in the automobile industry. He possesses all the qualifications necessary to the performance of the important duties that will devolve upon him in his position with the Ajax Motor Company and because of his character and integrity we are proud to have him in so important a position with a Nash Motor interest."

#### AWARD PARADE PRIZES

ST. LOUIS, Aug. 11.—F. C. McDonald, president of the St. Louis Automobile Dealers Association, H. C. Merry of the Wilson Motor Car Co., and Robert E. Lee served as a committee which awarded prizes for the most handsomely decorated car in a parade held by the Grand-Arsenal Business Men's Association. First prize of \$50 was awarded to J. F. Nordman for a car completely covered in white and green and in which the four passengers were dressed in white and wore green hatbands. There were 100 contestants.



## Willys-Overland Prepares for More Factory Branches

**Will Change From Distributor Basis  
at Detroit, Des Moines, Pitts-  
burgh and Other Points**

DETROIT, Aug. 11.—Willys-Overland Co. is opening a direct factory branch here to take over the state distribution left open by the withdrawal of Guy O. Simons, state distributor. The opening of the factory branch here will be followed by the establishment of similar branches in several other cities, according to a statement by L. G. Peed, general sales manager of this company.

The other points which, according to Mr. Peed, will be changed over to the factory branch basis are Des Moines, Pittsburgh, Louisville, Wheeling, W. Va., and Altoona, Pa. Changes from the distributor basis in these cities will become effective Aug. 31. In Detroit the factory branch is already installed, George E. Clark, being named manager. The branch will occupy the former quarters of the Simons Sales Co. on Willis street.

### National Evolution

Commenting on the proposed changes in its distribution methods at the several points named, Mr. Peed said:

"While it is with much regret that we sever the relations that have existed for a number of years between Willys-Overland and the Simons Sales Company, our plan to operate a direct factory branch in Detroit is but the natural evolution of the method of volume distribution.

"Believing that in these days of intensive competition first-hand control of distribution is imperative, Willys-Overland is widening its field of branch-house operations, and in addition to taking over the territory formerly controlled by Simons sales company it will on Aug. 31, take over the territory at several other points."

### PAIGE JEWETT CONTEST

DES MOINES, Ia., Aug. 9.—Payne Motor Co., distributor for Paige and Jewett in Iowa, Minnesota, North Dakota and portions of Wisconsin, Illinois and Missouri, is conducting a new sales contest for dealers. The contest started August 1 and ends November 15. It is open to all Paige and Jewett dealers in the Payne company's territory and every dealer who makes quota during the contest is to accompany the company's representatives on the prize trip.

The reward this year will be a trip to New Orleans, in December. Plans will be made to charter a special train for the 150 or more dealers who likely will make the trip. Roy Gresham, manager of the company, expects an even more successful sales contest than the one held last year, when a hunting and fishing trip rewarded the successful dealers.

## 18,053 Miles of Highway Under Construction in Fiscal Year Ending June 30, Reports U. S. Bureau

**Estimated Cost of Total Mileage Is Put at \$380,649,591 With Federal  
Aid Allotment Amounting to \$172,613,311**

WASHINGTON, Aug. 11.—A total of 18,053.50 miles of road was under construction during the fiscal year recently ended, according to figures just compiled by the Bureau of Public Roads as of June 30, 1924, showing the status of Federal aid highway construction. This total miles of roads under construction is at an estimated cost of \$380,649,591.14 with a Federal aid allotment of \$172,613,311.94.

Projects approved for construction in

the various states, the statistics further reveal, involve a total of 2,119.7 miles of road at an estimated cost of \$50,927,944.87 with a Federal aid allotment of \$20,236,993.42.

Texas and New York lead in the states having road projects under construction in amount of cost involved with \$25,874,603.79 and \$24,663,366.96, respectively. Three other states which rank high are: Kansas, \$16,689,331.36; Illinois, \$16,485,446.19, and Indiana, \$15,956,388.75.

## Good Trade Promised Texas for Remainder of the Year

AUSTIN, Tex., Aug. 11.—During the period January 1, 1924, to July 15 there were registered in the State Highway Department of Texas a total of 622,515 passenger automobiles, 49,292 commercial motor vehicles, 3060 motor buses, 1856 trailers, 106 tractors 21,97 motorcycles.

During that period there were issued 9829 chauffeurs licenses, 112-764 transfers, 27,501 duplicate numbers, and 246 out-of-state visitors' licenses.

In view of the fact that prospects are excellent for an unusually large cotton crop and that the state as a whole is prosperous, the motor vehicle trade for the remaining five and one-half months of the year is expected to be equally as good or better than for the period already passed.

### ARRANGE TIRE SERVICE

ST. LOUIS, Mo., Aug. 11.—At a recent meeting of the Associated Tire Dealers of St. Louis it was announced that an agreement had been signed with the Nelson Motor Maintenance Co., under which the Nelson Company would take entire charge of the night, Sunday and holiday business of the members of the association. Under this arrangement the Nelson company will go to the assistance of any customer of any of the 62 associated tire dealers. In case of a blowout a tire will be taken to the motorist, a tube will be sold to him and a definite charge made for this service and for doing the work necessary to send him on his way again. A \$5 deposit will be required for the loaned tire. The tire must be returned to the company within twenty-four hours and his deposit will apply on the purchase price of a new one. Pay for the work will be collected on the spot unless the driver of the car has a charge account with one of the member companies.

### TAKES STEPHENS QUARTERS

MOLINE, Ill., Aug. 11.—Discontinuance of the Stephens Motor company resembled a boon to the McMullen Sales company, which handles the Durant and Star business of the city. Forced by the large increase in business to seek larger quarters, Mr. W. H. McMullen has secured the expansive garage formerly occupied by the Stephens Sales organization.

W. B. Chamberlain, an expert mechanic has been secured to take charge of the service department of the McMullen Sales company which will give special service to all Durant and Star owners of the tri-cities.

### IN NEW BUILDING

ST. LOUIS, Aug. 11.—Tate Motor Car Co., Dodge Brothers distributor in St. Louis, has occupied its elaborate new building at Garrison and Washington avenues. The building cost approximately \$200,000. It contains many new features. The formal opening will be held next month.

The premises formerly occupied by the Tate company at 3111 Locust street has been taken over by the De Luxe Automobile Co., St. Louis Oldsmobile distributors, which will retain its present location at 3128 Locust street to be used as a used car headquarters.

### FEWER STOLEN CARS

QUEBEC, Que., Aug. 11.—Stolen cars, even at very low prices, have lost much of their attraction this season in the Province, judging by the fact that the Provincial Automobile Bureau has only had ten cases reported as compared to 50 in the same period last year. This improvement in conditions was most likely due to the fear of purchasers of losing their cars under an amendment presented at the last session of the Quebec legislature.

## WITH THE ASSOCIATIONS

### New Name, Wider Scope

MINNEAPOLIS, Aug. 11.—The Garage Owners Association of Minnesota has changed its name to the Minnesota Motor Trades Association. This matter was discussed at the annual meeting in Minneapolis during show week, action being left to the directors. The change widens the scope of the organization. Plans were discussed at the meeting Aug. 1 in Minneapolis to include automobile dealers under the new arrangement. L. H. Powell of Marshall continues as president under the new name; W. J. Potts of Minneapolis as treasurer, and Arnon N. Benson of Minneapolis as secretary. By a novel plan there are the following vice-presidents: First, A. N. Tyrholm of New Richmond; second, C. C. Case of Rochester; third, G. H. Polley of Winona; fourth, Rud Stensvad of Redwood Falls; fifth, O. N. Skagsburg of Cloquet; sixth, G. H. Simons of Montevideo. Attention will be directed toward aiding in solution of the problems of dealers and service stations in legislative and educational directors.

### Urges Honest Methods

ST. LOUIS, Mo., Aug. 11.—A meeting of automobile dealers, of their sales managers and salesmen under the auspices of the St. Louis Automobile Dealers Association was held at Riverview Club. There were 341 automobile men present. Robert E. Lee, manager of the St. Louis Automobile Dealers Association, presided.

The chief speaker of the evening was Albert H. Rankin, vice-president of the First National Bank of Springfield, Ill., as well as an honorary member of the Springfield Automobile Dealers Association.

Mr. Rankin has made a thorough study of the used car situation, advocates adoption of the "Saginaw Plan." He said the keystone of success in business is first practicing the fundamentals of honest merchandising; second, close and friendly contact with competitors, and third, absolute honesty, not only with the customer but also with the competitor.

Frank C. McDonald spoke briefly, welcoming the visitors, and calling attention to the serious menace of the used car situation if not handled properly and on the same basic principles as in the case of any other merchandise.

Joseph A. Kellerman, sales manager of the Hudson-Frampton Co., discussed the danger of overselling customers. He advised strongly the utmost loyalty to the employer, but also the utmost fairness to the customer.

### Change Meeting Date

CLEVELAND, Aug. 11.—The annual meeting of the Automotive Electric Association will be held at the Greenbrier Hotel, White Sulphur Springs, W. Va., on Sept. 17 to 20, instead of Sept. 8 to 11 as first announced.

### Names Used Car Committee

ST. LOUIS, Aug. 11.—F. C. McDonald, president of the St. Louis Automobile Dealers Association, has announced the appointment of a permanent used car committee consisting of George M. Berry of the Berry Motor Car Co., Packard distributors; James E. Newell of the Newell Motor Car Co., Paige and Jewett distributors, and H. L. Schnure of the Schnure-Buick Motor Car Co., Buick dealers. The purpose of the committee is to co-ordinate the used car business of members of the association so the public will be assured of right treatment and of full observance of guarantees by members in the sales of used cars. Also the committee will seek a more stable basis for the values of used cars.

The first step the committee has taken has been to announce a meeting of the major automobile distributors in St. Louis to be held shortly to get the project under way.

### Hansen Succeeds Hicks

ROCHESTER, N. Y., Aug. 11.—Directors of the Rochester Automobile Dealers Association elected J. F. Hansen president to fill the unexpired term of John L. Hicks, who has resigned. Mr. Hansen, who has been vice-president of the association for the past year, is head of Packard-Rochester Motors, Packard distributors, and a former Packard factory executive. He came to Rochester in 1922 from Kansas City.

### Trade Aids in Club Drive

GENEVA, N. Y., Aug. 11.—Automobile and accessory dealers are co-operating with the Geneva Automobile Club in a campaign to double the club's membership. The dealers will help canvass all motorists in the city. The campaign starts next week.

### Heads Rochester Dealers

BUFFALO, Aug. 11.—At a recent meeting of directors of the Rochester Automobile Dealers' Association, J. F. Hansen was elected president. He succeeds John L. Hicks, resigned.

Mr. Hansen is president of the Packard-Rochester Motors, distributors of the Packard automobile in that city. He is a former Packard executive, and came to Rochester from Kansas City in 1922. Previous to his recent election, he was vice-president of the dealers' association.

### Dealers Have Good Time

KNOXVILLE, Tenn., Aug. 11.—The annual outing and picnic of the Knoxville Automobile Dealers Association was held at Chilhowee Park Tuesday, July 29, with an attendance representing close to 100 per cent of all the Knoxville trade. A barbecue featured the occasion, and a dozen interesting athletic events were on the program, including a sack race, short sprint races, a baseball game, tug-of-war, a battle royal, etc.

## Ford of Canada Adopts New Plan for Handling Used Cars

### System Enables Dealers to Estimate True Allowances Which Should Apply on Trade-Ins

FORD, Ont., Aug. 11.—A new method of handling used cars has been announced by the Ford Motor Company of Canada, Limited. The company through a study of used car prices in different points of Canada, is able to keep its dealers posted on the proper value in "unused transportation" in each model of Ford cars, depending upon the year of manufacture. All models that have been built within the last five years are included in this list.

The basis of this estimated value to the purchaser is that the used car shall be in normal running condition, and, therefore, will furnish the amount of mileage expected of it. Inasmuch as freight costs cause a difference in the price of new cars, according to the distance from Ford, Ont., the prices on used cars which are approved by the company are set at Ford, Ont.

Authorized Ford dealers using the approved valuation prices as supplied them by the company, are able to estimate the true allowance that they are able to make on a "trade in" and still have any necessary margin for the cost of reconditioning the car. This will to a certain degree standardize prices according to actual value of used cars to a purchaser. In this way the purchaser is assured that he is paying only for what he gets in the way of "unused transportation or mileage in the used Ford car that he buys."

## Highway Contracts Let and Pending Link Frisco to Reno

SACRAMENTO, Cal., Aug. 11.—Contracts completed, let or pending provide for improvement to state highway specifications of the entire route between San Francisco and Reno, Nev.

Paved highway already exists from San Francisco through Sacramento to Colfax, approximately 150 miles. One contract has been let and two have been advertised for construction between Colfax and Donner Summit, elevation 7,018 feet. A contract is under way between Donner Summit and Truckee and contracts are let or about to be let between Truckee and the Nevada line. The distance from the state line to Reno is either completed, under contract or about to be let.

The entire project, including surfacing, should be completed by the end of the 1925 season and will give a maximum grade of 8 per cent or less over the Sierra Nevada range.

When completed this road will be the first of highway width and gradient to be built over the great western mountain ranges of the United States.



# Prices and Weights of Current Passenger Car Models

Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price
AMERICAN "D-66"					CHEVROLET "Superior"					DUESENBERG St. "8"					HUDSON "Super Six"				
2985	2-p		Roadster	\$1,950	1690	2-p		Sup. Roadster	\$495	3200	2-p		Roadster	\$6,500	3300	4-p		Speedster	\$1,400
3175	4-p		Sp. Roadster	2,050	1790	5-p		Sup. Touring	510	3550	5-p		Phaeton	6,250	3425	7-p		Phaeton	1,500
3260	5-p		Touring	1,695	1955	5-p		Phaeton DeLuxe	640	3750	7-p		Phaeton	6,750	3450	5-p		Coach	1,500
3300	5-p		Sport	1,850	2005	4-p		Sup. Coupe	725	3750	4-p		Sp. Phaeton	6,500	3590	5-p		Sedan	2,150
3810	7-p		Touring	1,760	1880	2-p		Sup. Utility Coupe	640	4000	4-p		Coupe	7,500	3675	7-p		Sedan	2,250
3190	4-p		Sp. Touring	1,885	2070	5-p		Sup. Sedan	795	4350	7-p		Sedan	7,800					
3470	7-p		Sedan	2,550	CHANDLER SS					DU PONT "C"					HUPMOBILE "R"				
3310	5-p		Brougham	2,195	2945	2-p		Roadster	\$1,795	3300	2-p		Roadster	\$2,090	2595	2-p		Roadster	\$1,200
ANDERSON "41"					3130	4-p		Roadster	1,785	3400	5-p		Touring	2,090	2705	5-p		Touring	1,200
2650	5-p		Touring	\$1,195	3160	5-p		Touring	1,585	3600	5-p		Touring Sedan	3,050	2760	2-p		Coupe	1,440
2675	4-p		Sp. Touring	1,445	3218	7-p		Touring	1,735	3600	5-p		Suburban Sedan	3,050	2860	4-p		Coupe	1,595
2925	2-p		Coupe	1,425	3250	4-p		Royal Dispatch	1,885						2975	5-p		Sedan	1,775
2725	4-p		Coach	1,495	3380	5-p		Chummy Sedan	1,845	DURANT "A-22"					2875	5-p		Club Sedan	1,450
2875	5-p		Sedan	1,695				Sedan	1,995	2235	2-p		Roadster	\$1,040					
2925	5-p		Sp. Sedan	1,895	3600	7-p		Sedan	2,195	2325	5-p		Touring	890	JEWETT				
			Brougham 3 d.	1,595	3480	7-p		Limousine	3,095	2345	5-p		Touring F.W.B.	940	2690	5-p		Touring	\$1,065
"50"					CHRYSLER					2395	5-p		Sp. Touring	1,090	2810	5-p		DeLuxe Touring	1,220
2975	7-p		Touring	1,595	2600	4-p		Roadster	1,625	2495	5-p		Coupe	1,340					
3200	7-p		Sedan	1,945	2650	5-p		Touring	1,395	2405	2-p		Business Coupe	1,035	2880	5-p		Sedan	1,495
APPPERSON "6"					2650	5-p		Phaeton	1,495	2605	5-p		Sedan	1,365	3095	5-p		DeLuxe Sedan	1,695
2915	5-p		Phaeton	\$1,395	2650	5-p		Phaeton	1,395	2670	5-p		Touring Sedan	1,465	2775	5-p		Brougham	1,325
2965	5-p		Sp. Phaeton	1,600	2915	5-p		Imperial Sedan	1,995	2530			Coach	1,185					
3400	5-p		Sedan	1,995	2855	5-p		Brougham	1,895	ELCAR "4-40-41"					JORDAN (120 in. W. B.)				
3450	5-p		Sp. Sedan	2,195	CLEVELAND "43"					2560	5-p		Touring	\$995	3000	2-p		Playboy Road.	\$1,850
			"8"		2750	5-p		Touring	1,095	2585	5-p		Demi Sp. Touring	1,095	3100	5-p		Touring	1,775
4100	5-p		Phaeton	\$2,485	2810	5-p		Touring De Luxe	1,195	2641	5-p		Sportster	1,195	3420	5-p		Brougham 4 d.	2,385
4315	7-p		Phaeton	2,535	2830	3-p		Coupe	1,295	2900	5-p		Sedan	1,495	3375	4-p		Victoria	2,385
4250	5-p		Sport Phaeton	2,900	2840	3-p		Spec. Coupe	1,395	2981	5-p		Sp. Sedan	1,695	(124 1/2 in. W. B.)				
4440	5-p		Sedan	3,485	2930	5-p		Sedan 2-door	1,395	2779	5-p		Brougham 3 d.	1,265	3260	4-p		Blueboy Touring	2,095
4570	5-p		Sport Sedan	3,750	3040	5-p		Spec. Sedan 4 d.	1,495	2829	5-p		Sp. Brough. 3 d.	1,395	3585	5-p		Sedan	2,585
4555	7-p		Sedan	3,585	COLE MASTER					2600	5-p		Demi Sp. Tour.	\$1,220	3490	7-p		Sedan	2,785
AUBURN "6-43"					3695	4-p		Volante Touring	\$2,175	2690	5-p		Sp. Touring	1,420	Series "A"				
2550	5-p		Touring	\$1,095	3765	7-p		West. Tour.	2,175	2900	5-p		Sedan	1,720	3000	2-p		Playboy Road.	2,575
2672	5-p		Special Touring	1,295	3695	4-p		Aero-Volante	2,475	2981	5-p		Sp. Sedan	1,920	3100	5-p		Touring	2,575
2772	5-p		Sp. Touring	1,365	3890	4-p		Imperial Coupe	2,750	2779	5-p		Brougham	1,490	3420	5-p		Brougham	2,375
2850	5-p		Coupe Touring	1,595	3950	5-p		Brouette Sedan	3,075	2829	5-p		Sp. Brougham	1,620	3375	4-p		Victoria	2,775
2852	5-p		English Coach	1,845	4090	7-p		Royal Sedan	3,075	"6-50-51"					3585	5-p		Sedan	2,975
2982	5-p		Sedan	1,695	4150	7-p		Royal Limousine	3,175	2007	5-p		Touring	\$1,585	KING (120 in. W. B.)				
			"6-63"		COLUMBIA					2480	5-p		Touring	\$1,175	3428	2-p		Sportster	\$1,395
3262	5-p		Touring	\$1,695	2485	5-p		Spec. Touring	1,275	3380	5-p		Sedan	2,245	3428	4-p		Foursome	1,795
3382	5-p		Sp. Touring	1,935	2510	2-p		Coupe	1,375	3675	5-p		Sp. Sedan	2,395	3528	5-p		Touring	1,595
3562	5-p		Sedan	2,445	2725	5-p		Coach	1,575	3380	4-p		Brougham	1,995	3645	3-p		Coupe	2,200
3572	5-p		Brougham	2,245	2810	5-p		Sedan	1,775	ESSEX					3875	5-p		Sedan	2,400
BARLEY "6-6-50"					CUNNINGHAM "V-4"					2130	5-p		Touring	\$900	3400	5-p		Road King Sedan	1,495
2750	5-p		Touring	\$1,395	4600	7-p		Touring	\$6,300	2305	5-p		Coach	1,000	3400	4-p		Sedanette	1,995
2800	5-p		Sp. Touring	1,495	4500	4-p		Sp. Touring	5,800	FLINT "55"					3428	2-p		Sportster	\$1,995
3100	5-p		Sedan	1,850	4700	4-p		Coupe	7,150	3000	5-p		Sp. Roadster	\$1,630	3428	4-p		Foursome	1,795
3150	5-p		Sp. Sedan	2,250	5000	6-p		Sedan	7,650	3200	4-p		Coupe	2,095	3528	7-p		Touring	1,795
BUICK "Standard"					DAGMAR "6-70"					3575	4-p		Sedan	2,185	3645	4-p		Coupe	2,400
2750	2-p		Roadster	\$1,150	3800	4-p		Sp. Touring	\$3,500	5-p		Touring	1,075	3875	7-p		Sedan	2,625	
2800	2-p		Roadster Encl.	1,190	4200	4-p		Sedan	4,500	FORD					3400	7-p		Road King Sedan	1,795
2920	5-p		Phaeton	1,175	DANIELS "24-38"					Without Starter and Dem. Rims					3400	5-p		Sedanette	2,295
2970	5-p		Phaeton Encl.	1,250	4150	4-p		Touring	\$6,800	1395	2-p		Runabout	\$265	KISSELL "55"				
			Business Coupe	1,375	4765	7-p		Touring	6,900	1517	5-p		Touring	295	2980	5-p		Phaeton Std.	\$1,685
3075	4-p		Coupe	1,565	4600	4-p		Sedan	7,600	With Starter and Dem. Rims					3170	5-p		Phaeton DeLuxe	1,885
3185	5-p		Dbl. Service Sedan	1,475	5200	7-p		Sedan	7,800	1540	2-p		Runabout	\$350	3190	5-p		Tourster	2,085
3245	5-p		Regular Sedan	1,665	DAVIS "71"					1662	5-p		Touring	380	3130	2-p		Speedster	2,185
			"Master		2650	3-p		M. O'War Road.	\$1,395	1772	2-p		Coupe	525	3430	4-p		Coupe	2,585
			(120 in. W. B.)		2915	4-p		Legionaire Tour.	1,495	1950	5-p		Sedan, Fordor	685	3530	5-p		Sedan	2,685
3300	2-p		Roadster	\$1,365	2750	5-p		Phaeton	1,395	1898	5-p		Sedan, Tudor	590	3530	2-p		Enc. Speedster	2,785
			Roadster Encl.	1,400	3070	5-p		Sedan	1,895	FRANKLIN "10 C"					4070	7-p		Sedan	3,385
3455	5-p		Phaeton	1,395	3065	5-p		Berline Sedan	1,995	2580	5-p		Touring	\$1,950	4010	7-p		Berline Sedan	3,485
			Phaeton Encl.	1,475	2700	5-p		Brougham	1,595	2710	4-p		Coupe	2,750	LAFAYETTE				
3675	4-p		Coupe	2,125	DODGE BROTHERS					2730	5-p		Sedan	2,850	4118	7-p		Touring	\$3,250
3845	5-p		Sedan	2,225	2513	2-p		Roadster	\$865	2655	5-p		Demi-Sedan	2,250	4082	4-p		Torpedo	3,250
			(128 in. W. B.)		2653	2-p		Spec. Roadster	1,025	2765	5-p		Brougham	2,850	4288	4-p		Coupe	4,300
3470	3-p		Sp. Roadster	\$1,750	2750	5-p		Spec. Touring	1,055	GARDNER "Series 5"					4482	5-p		Sedan	4,400
3605	5-p		Sp. Phaeton	1,800	2809	4-p		Coupe	1,375	2520	2-p		Roadster	\$945	4482	7-p		Imp. Sedan	4,500
3645	7-p		Phaeton	1,625	2755	2-p		Coupe B	1,035	2550	2-p		Radio Roadster	1,135	4375	7-p		Limousine	4,000
			Phaeton Encl.	1,700	2929	4-p		Spec. Coupe	1,535	2555	5-p		Touring	995	4482	7-p		Imperial Lim.	4,700
3940	5-p		Brougham Sedan	2,350	3098	5-p		Sedan A	1,385	2650	5-p		Tour. DeLuxe	1,165	LINCOLN				
4020	7-p		Sedan	2,425	3190	5-p		Spec. Sedan	1,545	2750	5-p		Rad. Spec. Tour.	1,145	3120	2-p		"Minute Man"	\$1,895
			Sedan Limousine	2,525	DORRIS "6-80"					2895	5-p		Sedan	1,475	3489	5-p		Skylark Roadster	2,145
3245	5-p		Town Car	2,925	4120	4-p		Pasadena Tour.	\$4,150	3070	5-p		Sp. Sedan	1,575	3195	5-p		Touring	1,895
			(120 in. W. B.)		4115	7-p		Touring	3,950	2680	5-p		Coupe	1,275	3365	5-p		Cal. Touring	2,195
3300	2-p		Roadster	\$1,365	4193	4-p		Coupe	4,985	GRAY "O"					3280	7-p		Touring	1,995
			Roadster Encl.	1,400	4200	5-p		Sedan	5,550	1755	5-p		Touring	\$630	3395	7-p		Cal. Touring	2,395
3455	5-p		Phaeton	1,395	4810	7-p		Sedan	5,800	1850	2-p		Coupe	750	3375	5-p		Royal Coach	2,895
			Phaeton Encl.	1,475	DORT "27"					2023	5-p		Sedan	895	3542	5-p		Sedan	2,695
3675	4-p		Coupe	2,125	2595	5-p		Touring	\$1,095	HCS "4"					3440	4-p		Brougham	2,395
3845	5-p		Sedan	2,225	2780	5-p		Sp. Touring	1,245	3360	4-p		Touring	\$2,250	2				

# Prices and Weights of Current Passenger Car Models

Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price	Ship.	Wt.	Pass.	Body Style	Price
LOCOMOBILE					OLDSMOBILE					REO					STUDEBAKER				
"48"					"30"					"T-6"					Light Six "EM"				
5030	4-p		Sportif Tour.	\$7,400	2145	2-p		Roadster	\$785	3172	5-p		Sta. Touring	\$1,395	2510	3-p		Roadster	\$1,925
5380	7-p		Touring	7,400	2270	2-p		Roadster	885	3182	5-p		Sport Touring	1,595	2650	5-p		Touring	1,945
5600	5-		Victoria Sedan	9,990	2170	5-p		Touring	795	3325	4-p		Coupe	1,875	2736	2-p		Coupe	1,195
5464	7-p		Brougham	9,990	2320	5-p		Sp. Touring	915	3515	5-p		Sedan	1,985	2955	5-p		Coupe	1,395
5640	7-p		Tour. Limousine	9,000	2295	2-p		Cab	985	3695	5-p		Brougham 4 d.	2,235	3030	5-p		Sedan	1,485
5868	7-p		Encl. Drive Lim.	9,990	2410	4-p		Coupe	1,075	REVERE					Special Six "EL"				
5624	7-p		Cabriolet	10,250	2570	5-p		Sedan	1,135	3700	2-p		Roadster	\$3,200	3065	2-p		Roadster	\$1,400
McFARLAN					2700	5-p		DeLuxe Sedan	1,245	3500	4-p		Speedster	3,200	3305	5-p		Touring	1,425
"6" TV					OVERLAND					"M"					3800	5-p		Touring	3,200
4600	2-p		Roadster	\$5,400	"91" (100 in. wheelbase)					4300	5-p		Sedan	4,000	3650	5-p		Coupe	1,805
4600	4-p		Sport Touring	5,600	1769	2-p		Roadster	\$495	RICKENBACKER					3650	5-p		Sedan	1,985
4700	7-p		Touring	5,700	1863	5-p		Touring	495	"C"					2670	5-p		Speedster	\$1,835
4900	4-p		Coupe	6,720	1918	5-p		Touring DeLuxe	560	2815	3-p		Sp. Roadster	\$1,645	3555	7-p		Touring	1,750
5200	4-p		Tour. Sedan	6,720	2177	2-p		Coupe	650	2880	5-p		Sp. Touring	1,595	3695	5-p		Coupe	2,495
5200	7-p		Tour. Sedan	6,810	2130	5-p		Sedan	795	3050	4-p		Coupe	2,095	3895	7-p		Sedan	2,655
5200	7-p		Sp. Sedan	6,600	2004	5-p		Coupe Sedan	655	3160	5-p		Sedan	2,195	TEMPLAR				
5200	7-p		Sub. Sedan	7,000	"92" (106 in. wheelbase)					"A"					3300	4-p		Suburban Tour.	\$2,175
5100	7-p		Limousine	6,900	2047	5-p		Red Bird	\$695	4-p		Sport phaeton	\$2,195	3300	5-p		Phaeton	1,985	
5200	7-p		Town Car	9,000	2044	5-p		Red Bird Spec.	735	4-p		Coupe	2,695	3300	5-p		Brougham	2,785	
"Light 6" SV					2090	5-p		Blue Bird	725	5-p		Sedan	2,795	VELIE					
3700	3-p		Roadster	\$2,600	2004	5-p		Black Bird	695	ROAMER					"56"				
3700	5-p		Touring	2,600	2090	5-p		Black Bird Spec.	735	"6-54-E" (118 in. W. B.)					2780	5-p		Touring	\$1,095
3850	4-p		Coupe	3,100	PACKARD					3100	2-p		Roadster	\$2,685	3110	5-p		Sedan	1,545
4850	5-p		Sedan	3,100	3165	4-p		Roadster	\$2,785	3100	4-p		Tourer	2,485	"58"				
MARMON					3320	5-p		Touring	2,585	3300	4-p		Sp. Touring	2,750	2780	3-p		Roadster	1,275
"34"					3255	4-p		Sp. Touring	2,750	3300	4-p		Sp. Touring	2,750	2780	5-p		Touring	1,275
3470	2-p		Speedster	\$3,295	3425	5-p		Per. Top. Touring	2,850	4100	5-p		Spec. Sedan	\$4,250	2990	5-p		Sp. Touring	1,565
3650	4-p		Speedster	3,295	3400	4-p		Coupe	3,275	4200	7-p		Suburban-Sedan	3,950	2990	5-p		Silver Swallow	1,445
3575	4-p		Phaeton	3,095	3515	5-p		Coupe	3,450	3650	4-p		Sport	3,650	2895	5-p		DeLuxe Touring	1,495
3690	7-p		Phaeton	3,095	3565	5-p		Sedan	3,375	"4-75-E"					2970	4-p		Coupe	1,445
3770	4-p		Coupe	3,585	3610	5-p		Sedan Limousine	3,425	3200	2-p		Spec. Speedster	3,785	3110	5-p		Royal Sedan	1,845
3970	4-p		Sedan	3,985	"6" (133 in. W. B.)					ROLLIN					3300	5-p		Sedan	1,895
4155	7-p		Sedan	3,985	3430	7-p		Touring	\$2,785	2300	5-p		Touring	\$995	3300	5-p		Touring Sedan	2,095
4220	7-p		Suburban	4,285	3690	7-p		Sedan	3,625	2315	5-p		Coupe Roadster	1,195	1945	5-p		Brougham 4 d.	1,945
4100	7-p		Limousine	4,285	3765	7-p		Sedan Limousine	3,675	2485	5-p		Sedan	1,295	WESTCOTT				
4000	7-p		Town Car	4,285	"8" (136 in. W. B.)					R & V KNIGHT					"44"				
MAXWELL					3880	4-p		Runabout	3,850	3840	4-p		Sp. Roadster	\$2,400	3050	5-p		Touring	\$1,690
"25"					3990	5-p		Touring	3,650	3800	5-p		Touring	2,300	3150	5-p		Spec. Touring	1,940
2225	2-p		Roadster	\$885	3930	4-p		Sp. Touring	3,800	4050	5-p		Coupe	3,000	3300	5-p		Brougham 4 d.	2,290
2250	5-p		Touring	895	4125	4-p		Coupe	4,550	4160	5-p		Club Sedan	3,050	"48"				
2470	5-p		Sp. Touring	1,055	4200	5-p		Coupe	4,725	4165	7-p		Sedan	3,250	3550	7-p		Touring	\$1,990
2825	2-p		Club Coupe	1,025	4270	5-p		Sedan	4,650	"H"					3650	7-p		Spec. Touring	2,190
2450	5-p		Club Sedan	1,095	4275	5-p		Sedan Limousine	4,700	3840	4-p		Sp. Roadster	\$2,400	"60"				
2650	5-p		Sedan	1,325	4850	7-p		Sedan Limousine	4,950	3800	5-p		Touring	2,300	3300	5-p		Sedan	\$2,190
MOON					4020	7-p		Touring	\$3,350	3850	7-p		Touring	2,375	WILLS SAINT CLAIRE				
Series "A"					4275	7-p		Sedan	4,900	4050	5-p		Coupe	3,000	"A-68" (121 in. W. B.)				
2400	4-p		Roadster	\$1,350	4350	7-p		Sedan Limousine	4,950	4160	5-p		Club Sedan	3,050	3240	3-p		Roadster	\$2,575
4-p			Road. Spec.	1,150	PAIGE					4165	7-p		Sedan	3,250	3320	5-p		Touring	2,475
2410	5-p		Sp. Touring	1,295	3677	4-p		Phaeton	\$1,895	ROLLS ROYCE					3460	4-p		Coupe	3,275
5-p			Tour. Spec.	1,095	3742	7-p		Phaeton	1,895	Chassis—\$10,895. Prices of complete cars to be obtained from factory, Springfield, Mass.					3420	7-p		Sedan	3,475
2625	5-p		Sedan 2 d.	1,595	3880	4-p		Phaeton DeLuxe	2,095	STANLEY					3670	5-p		Imperial Sedan	3,575
5-p			Sedan, 2 d Spec.	1,495	4040	5-p		Sedan	2,595	3770	5-p		Phaeton	\$2,750	3500	5-p		Brougham	3,375
2750	5-p		Sedan 4 d.	1,695	4128	7-p		Sedan	2,595	3910	7-p		Phaeton	2,750	3650	5-p		Limousine	3,850
5-p			Sedan 4 d Spec.	1,595	4300	7-p		Sub. Limousine	2,895	4075	5-p		Sedan	3,585	3600	5-p		Town Car	3,850
"6-40"					4100	5-p		Sedan DeLuxe	2,770	4170	7-p		Sedan	3,985	"B-68" (127 in. W. B.)				
2860	5-p		Touring	\$1,395	3900	5-p		Brougham 4 d.	2,175	STAR					3500	4-p		Roadster	\$2,875
2870	5-p		Sp. Touring	1,595	4285	7-p		Sedan DeLuxe	2,770	1700	2-p		Roadster	\$540	3490	5-p		Gray Goose Spec.	2,675
2920	4-p		Coupe	1,785	PEERLESS					2025	5-p		Sedan	785	3470	7-p		Touring	2,675
2920	5-p		Sedan	1,795	3050	2-p		Roadster	\$2,350	2100	5-p		Spec. Sedan	935	3500	5-p		Traveler	2,975
3090	5-p		Petite Sedan	1,995	3175	5-p		Touring	2,285	STEARNS-KNIGHT					3575	7-p		Phaeton	2,875
"6-50"					3550	5-p		Sedan	2,995	"4"					3650	5-p		Sedan	3,775
2850	5-p		Touring	\$1,595	.....	5-p		Coupe	2,950	3775	4-p		Coupe Roadster	\$1,795	3465	5-p		Brougham	3,800
2970	5-p		Sp. Touring	1,695	.....	7-p		Sedan	3,295	3750	5-p		Sedan Brougham	1,895	3675	7-p		Limousine	3,990
3120	5-p		Sedan	1,985	3980	4-p		Tour. Phaeton	\$2,690	STAR					3500	4-p		Roadster	\$2,875
3190	5-p		Sp. Sedan	2,195	4300	7-p		Touring	2,750	1735	5-p		Touring	540	3490	5-p		Gray Goose Spec.	2,675
"6-58"					4355	7-p		Sedan	3,690	1800	5-p		Spec. Touring	640	3470	7-p		Touring	2,675
3270	5-p		Touring, Spec.	2,150	4430	7-p		Sedan	3,840	1925	2-p		Coupe	695	3500	5-p		Traveler	2,975
3510	7-p		Sp. Touring	\$2,150	4130	4-p		Victoria Coupe	3,390	2025	5-p		Sedan	785	3575	7-p		Phaeton	2,875
3510	7-p		Sedan	2,585	PIERCE-ARROW					2100	5-p		Spec. Sedan	935	3650	5-p		Sedan	3,775
3590	5-p		Petite Sedan	2,685	4350	2-p		Runabout	\$5,250	"33"					3650	7-p		Sedan	3,800
7-p			Petite Sedan	2,785	4590	5-p		Touring	5,250	4780	3-p		Coupe	6,800	3465	5-p		Brougham	3,800
NASH					4830	4-p		Sedan	6,900	4830	4-p		Sedan	7,000	3675	7-p		Limousine	3,990
"Special"					4960	7-p		Sedan	7,000	"4"					3675	7-p		Limousine	3,990
2960	5-p		Touring	\$1,095	4750	4-p		Coupe Sedan	6,900	3775	5-p		Touring	\$2,395	2681	2-p		Roadster	\$1,175
3120	5-p		Sedan	1,295	4730	5-p		Brougham	6,800	3850	7-p		Touring	2,495	2768	5-p		Touring	1,195
"Advanced"					4850	7-p		Limousine	7,000	4025	2-p		Coupe	3,395	3062	3-p		Coupe	1,740
(121 in. W. B.)					5060	7-p		Enclosed Lim.	7,000	4275	4-p		Sp. Coupe	3,150	3115	5-p		Sedan	1,695
.....	3-p		Roadster	\$1,375	4780	7-p		French Lim.	7,000	4275	7-p		Sp. Sedan	3,395	3111	4-p		Coupe Sedan	1,450
3250	5-p		Touring	1,375	4780	7-p		French Lim.	7,000	3950	5-p		Brougham	3,200	3115	5-p		Coupe Sedan	1,550
3540	5-p		Sedan	1,695	4732	6-p		Landaulet	7,000	STERLING-KNIGHT					3167	5-p		Sedan DeLuxe	1,895
"Advanced"					"80"					"4"					"67"				
(127 in. W. B.)					.....	4-p		Phaeton	.....	3775	5-p		Coupe Roadster	\$1,795	3059	7-p		Touring	1,825
3370	7-p		Touring	\$1,525	.....	3-p		Roadster	.....	4250	5-p		Sedan	1,595	3431	7-p		Sedan	1,995
3670	7-p		Sedan	2,290	3640	7-p		Phaeton	\$2,895	3750	5-p		Coupe Brougham	1,895	WILLYS-KNIGHT				
3620	4-p		Coupe	2,190	3720	5-p		Sedan	3,895	"6"					"64"				
OAKLAND					.....	7-p		Sedan	3,995	"740"					"6"				
"6-54"					.....	7-p		Enc. Drive Sedan	4,045	1700	2-p		Roadster	\$540	2681	2-p		Roadster	\$1,175
2410	3-p		Roadster	\$995	.....	4-p		Coupe	.....	1735	5-p		Touring	540	2768	5-p		Touring	1,195
2520	3-p		Sp. Roadster	1,095	3640	7-p		Phaeton	\$2,895	1800	5-p		Spec. Touring	640	3062	3-p		Coupe	1,740
2485	5-p		Touring	995	3720	5-p		Sedan	3,895	1925	2-p		Coupe	695	3115	5-p		Sedan	1,695
2580	5-p	</																	



# Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL		Wheelbase (Ins.)	TIRES		ENGINE										Electrical System		Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES		Steering Gear	Rear Springs					
			Standard Size (Ins.)	Ballon Equipment	Make	Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower, N.A.C.C.	Valve Arrangement	Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make	Generator and Starter Make	Type and Make				Make	Type and Make	Type and Make	Gear Ratio			Foot, Type and Location	Hand, Type and Location	Four Wheel Brake Type	Make	Type and Length
American D-66	127	33x4 1/2	No	H-Sp	91	6-3 1/2 x 5	29.40	L	C	3	PS	Str	A-K	G-D	P-B&B	War	M-Har	F-Sal	5.10	E-R	I-R	None	Lav	S-57 1/4						
Anderson 41	115	32x4	Yes*	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Zen	Wes	Wes	P-B&B	Dur	F-Thi	1/2 Sal	4.75	E-R	E-T	Mec*	Gem	S-58						
Anderson 50	122	32x4	Yes*	Cont	8R	6-3 1/2 x 4 1/4	27.34	L	C	4	PC	Zen	Rem	Rem	P-B&B	Dur	F-Thi	1/2 Sal	4.62	E-R	E-T	Mec*	Gem	S-58						
Apperson 6	120	32x4	Yes*	Fall	T8000	6-3 1/2 x 4 1/4	23.44	L	C	3	PS	Str	Rem	Rem	P-Roc	Mec	M-Thi	1/2 Col	5.10	E-R	I-R	Mec*	Lav	J-48						
Apperson 8	130	33x5	No	Own	8	8-3 1/2 x 5	33.80	L	C	4	PC	Joh	Rem	Bij	D-Own	Mec	M-Thi	1/2 Own	4.25	E-R	I-R	Mec*	Own	J-48						
Auburn 6-43	114	31x4	Yes*	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	Rem	Rem	P-B&B	War	M-Uni	1/2 Col	4.63	E-R	E-T	Mec*	Jac	S-57						
Auburn 6-63	122	32x4 1/2	Yes*	Weid	Spec	6-3 1/2 x 5	25.35	L	C	3	PC	Str	Rem	Rem	P-B&B	War	M-Thi	1/2 Col	4.63	E-R	E-T	Mec*	Ros	S-57						
Barley 6-50	118	32x4	No	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	Del	De'	P-B&B	Ful	R-M&E	1/2 Col	5.11	E-R	I-R	None	Jac	S-56						
Buick "Standard"	114 1/4	31x4 1/2	Yes	Own	Sta	6-3 1/2 x 4 1/4	21.60	L	C	4	PS	Mar	Del	Del	D-Own	Own	M-Own	1/2 Own	4.66	E-F	I-R	Mec	Jac	S-55 1/4						
Buick "Master"	120	32x5 1/2	No	Own	6	6-3 1/2 x 4 1/4	27.34	L	C	4	PC	Mar	Del	Del	D-Own	Own	M-Own	1/2 Own	4.10	E-F	I-R	Mec	Jac	V-46 1/4						
Cadillac V-63	132	33x5	No	Own	63	8-3 1/2 x 5 1/2	31.25	L	C	3	PC	Sch	Del	Del	D-Own	Own	M-Spi	F-Own	4.50	B-F	I-R	Mec	Own	N-54						
Case JIC	122	32x4 1/2	Yes	Cont	8R	6-3 1/2 x 4 1/4	27.34	L	C	4	PC	Sch	Del	Del	D-Own	Own	R-Sne	1/2 Col	4.90	E-R	I-R	Hyd*	Jac	S-54 1/4						
Case Y	132	33x5	No	Cont	6T	6-3 1/2 x 5	33.75	L	C	4	PC	Ray	Del	Del	D-Own	Own	R-Sne	1/2 Col	4.40	E-R	I-R	None	Jac	S-57						
Chalmers 117	117	32x4	No	Own	6	6-3 1/2 x 4 1/4	25.35	L	C	3	PS	Str	A-L	A-L	P-Mec	War	M-Mec	1/2 Tim	5.13	E-R	I-R	Hyd*	Gem	S-56						
Chalmers Y	122	33x4 1/2	No	Own	6	6-3 1/2 x 4 1/4	25.35	L	A	3	PS	Str	A-L	A-L	P-Mec	War	M-Mec	1/2 Tim	5.13	E-R	I-R	Hyd*	Gem	S-56						
Chandler SS	123	31x6 1/2	Yes	Own	6	6-3 1/2 x 4 1/4	29.40	L	C	4	PC	Sch	Bos	Bos	P-B&B	Own	M-The	F-Own	4.45	E-R	E-T	Mec*	Own	S-57						
Chevrolet Superior	103	30x3 1/2	No	Own		4-3 1/2 x 4	21.76	L	C	3	PS	(Zen) Hol	Rem	(Rem) A-L	K-Own	Own	M-Own	1/2 Own	3.77	E-R	I-R	None	Own	Q-28						
Chrysler Six	112 3/4	29x4 1/2	Yes	Own		6-3 1/2 x 4 1/4	21.60	L	A	7	FP	Str	Rem	Rem	D-Own	Own	M-Own	1/2 Own	4.60	E-F	E-T	Hyd	Jax	S-51 1/4						
Cleveland 43	115	31x5 1/2	Yes*	Own	43	6-3 1/2 x 4 1/4	23.44	L	C	3	PC	Sch	Bos	Bos	P-B&B	Own	R-Sne	1/2 Own	4.90	E-R	E-T	Mec*	CAS	S-53						
Cole Master	127 1/4	33x5	Yes*	Nort	311	8-3 1/2 x 4 1/2	39.20	L	C	3	PC	Joh	Del	Del	D-Nor	Nor	M-Spi	F-Col	4.70	E-R	I-R	None	Gem	S-57						
Columbia 115	114	31x4	Yes*	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	A-L	A-L	P-B&B	Dur	M-Spi	1/2 Tim	4.80	E-R	E-T	Hyd*	Gem	S-57						
Crawford 6-70	138	33x4 1/2	No	Cont	6T	6-3 1/2 x 5 1/2	31.54	L	C	4	PC	Zen	Wes	Bos	D-B-L	B-L	M-Spi	1/2 Tim	5.00	E-R	I-R	None	Lav	S-57						
Cunningham V4	142	33x5	No	Own	V4	8-3 1/2 x 5	45.00	L	C	3	FP	Str	Del	Del	D-Own	Own	R-Sue	F-Tim	4.23	E-R	I-R	None	Gem	J-62						
Dagmar 6-70	138	33x5	No	Cont	6T	6-3 1/2 x 5 1/2	31.54	L	C	4	PC	Zen	Wes	Bos	D-B-L	B-L	M-Spi	1/2 Tim	5.00	E-R	I-R	None	Lav	S-57						
Daniels 24-38	138	33x5	Yes*	Own	24-38	8-3 1/2 x 5 1/2	39.20	L	C	3	PC	Zen	Wes	Del	P-Own	Own	M-Spi	F-Tim	4.23	E-R	I-R	None	Gem	S-57						
Davis 71	115	31x4	Yes*	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	A-L	A-L	P-B&B	W-G	M-Pet	1/2 Tim	5.10	E-R	I-R	Hyd*	Ros	S-52						
Davis 81	118	32x4 1/2	Yes*	Cont	8R	6-3 1/2 x 4 1/4	27.34	L	C	4	PC	Str	A-L	A-L	P-B&B	W-G	M-Pet	1/2 Tim	5.10	E-R	I-R	Hyd*	Ros	S-52						
Dodge Brothers 116	124	33x5	Yes*	Own	4	4-3 1/2 x 4 1/4	24.03	L	C	3	PS	Ste	N-E	N-E	D-Own	Own	M-Own	1/2 Own	4.54	E-R	I-R	None	Own	S-55						
Dort 27	115	31x4	Yes*	Fall	T8000	6-3 1/2 x 4 1/4	23.41	L	C	3	PC	Car	Bos	Bos	D-Dtl	Own	M-The	3/4 Flt	4.66	E-R	I-R	None	Gem	V-50						
Duesenberg Straight 8	134	33x5	No	Own	8	8-2 1/2 x 5	26.45	L	A	3	PC	Str	Del	Del	P-Own	Own	R-Cl	1/2 Own	4.90	I-F	E-T	Hyd	Lav	S-59						
Dupont C	124	32x4 1/2	No	H-Sp	90	6-3 1/2 x 5	29.40	L	C	3	PS	Str	Wes	Wes	D-B-L	B-L	M-Spi	F-Col	4.45	E-R	I-R	None	Jac	S-58						
Durant A-22	109	31x4	Yes*	Cont	Spec	4-3 1/2 x 4 1/4	24.03	L	A	3	PC	Til	A-L	A-L	P-Own	War	M-Spi	3/4 Ad	4.33	E-R	I-R	Mec*	War	S-49 1/4						
Elcar 6-41	112	31x4	No	Lyc	CF	4-3 1/2 x 5	21.03	L	A	5	PC	Zen	Del	A-L	P-B&B	W-G	M-Mec	1/2 Sal	4.70	E-R	I-R	Mec*	Ros	S-51						
Elcar 6-51	113	31x4	No	Cont	7U	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Str	A-L	A-L	P-B&B	W-G	M-Mec	1/2 Sal	4.70	E-R	E-T	Mec*	Ros	S-51						
Elcar 6-61	118	32x4	Yes*	Cont	8R	6-3 1/2 x 4 1/4	27.34	L	C	4	PC	Str	Del	Del	P-B&B	W-G	M-Har	1/2 Sal	4.70	E-R	I-R	Mec*	Ros	S-52						
Essex 6	110 1/2	31x5 1/2	Yes	Own	6	6-2 1/2 x 4 1/4	17.34	L	A	3	Sp	Ste	Bos	Bos	D-Own	Own	M-Spi	1/2 Own	5.60	E-R	I-R	None	Own	S-54 1/4						
Flint 40	115	30x4 1/2	Yes	Own	40	6-3 1/2 x 4 1/4	23.44	L	C	4	PC	Til	A-L	A-L	P-Own	War	M-Spi	1/2 Ad	4.77	E-F	E-F	Mec	War	S-50						
Flint 55	120	32x4 1/2	Yes*	Cont	Spec	6-3 1/2 x 5	27.34	L	C	7	PC	Str	Wes	Wes	P-Own	Own	M-Spi	1/2 Ad	4.77	E-R	E-T	Mec*	War	S-54						
Ford T	100	30x3 1/2	No	Own	T	4-3 1/2 x 4	22.50	L	C	3	Sp	(Own) Hol	Own	Own	D-Own	Own	M-Own	1/2 Own	3.63	E-T	I-R	None	Own	O-43 1/4						
Franklin 10 C	115	32x4 1/2	Yes*	Own	10-C	6-3 1/2 x 4	25.35	L	A	7	PC	Str	A-K	A-K	P-M&E	Own	M-Spi	1/2 Own	4.73	E-T	E-R	None	Own	E-38						
Gardner Series 5	112	32x4	Yes*	Lyc	CE	4-3 1/2 x 5	21.76	L	A	5	PC	Zen	Wes	Wes	P-B&B	Mec	M-Pet	3/4 Flt	4.80	I-R	I-R	None	Ros	S-51						
Gray 0	104	30x3 1/2	Yes*	Own	R	4-3 1/2 x 4	21.03	L	C	3	Sp	Ste	Wes	Wes	P-Own	Own	R-Sne	1/2 Tim	3.90	I-R	I-R	None	Own	Q-30						
H.C.S. Series 4	120	32x4 1/2	No	Weid	Spec	4-3 1/2 x 5 1/2	22.50	L	C	3	PS	Str	Del	Del	D-B-L	B-L	M-Spi	1/2 Own	4.63	I-R	I-R	None	Gem	S-56						
H.C.S. Series 6	126	32x5	Yes*	Own	6	6-3 1/2 x 5	29.40	L	C	3	FP	Str	Del	Del	D-B-L	B-L	M-Spi	1/2 Own	4.63	I-R	I-R	None	Gem	S-56						
Hatfield 6-55	121	32x4	No	H-Sp	40	6-3 1/2 x 5	25.35	L	C	3	PS	Str	Bos	Bos	P-B&B	Dur	M-Spi	1/2 Col	4.63	E-R	I-R	None	Gem	S-58						
Haynes 60	121	32x4 1/2	Yes*	Own	60	6-3 1/2 x 4 1/4	29.40	L	C	3	PS	Ray	Kin	L-N	D-Own	Mec	M-Thi	1/2 Own	4.41	E-R	E-T	None	Jac	S-54 1/4						
Hudson Super 6	127	33x6 1/2	Yes	Own	6	6-3 1/2 x 5	29.40	L	A	4	Sp	Ste	Bos	Bos	D-Own	Own	M-Spi	F-Tim	4.45	E-R	I-R	None	Gem	S-58						
Hupmobile Series R	115	32x4	Yes*	Own	R	4-3 1/2 x 5 1/2	16.90	L	A	3	PC	Str	Wes	Wes	D-Lon	Own	R-Uni	3/4 Own	4.87	E-R	I-R	None	Ros	S-56 1/4						
Jewett 112	112	31x4	Yes*	Own	6	6-3 1/2 x 5	25.36	L	C	3	PC	Ray	A-K	Rem	D-Lon	War	M-Mec	1/2 Tim	4.45	E-R	E-T	None	Gem	S-54						
Jordan K&L	120	32x4	Yes*	Cont	Spec	6-3 1/2 x																								

# Typical Testimonial

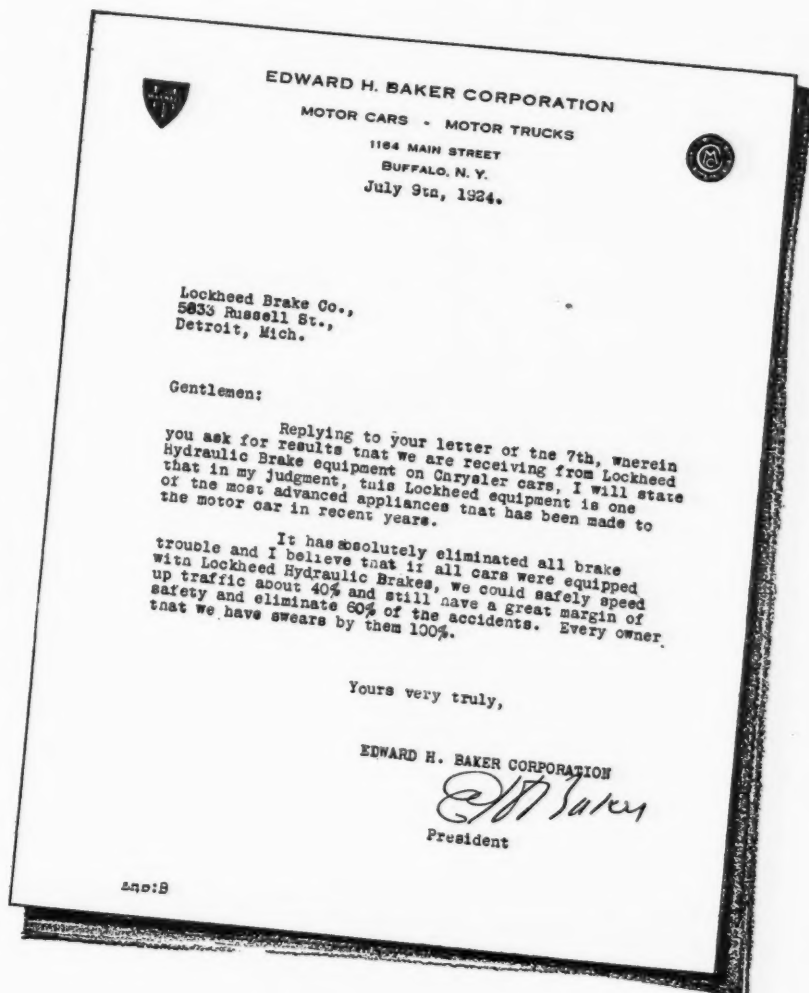
Everywhere dealers selling cars equipped with Lockheed Hydraulic Four-Wheel Brakes discover a four-fold result: 1st, Easier sales; 2nd, More sales; 3rd, Invaluable word-of-mouth advertising; 4th, Lessened service requirements.

It is perfectly plain that Lockheed Hydraulics are at least as good for the dealer as they are for the owner.

That is why in the United States, 33 manufacturers, among them some of the most conservative, have adopted Lockheed Hydraulic Brakes—against only 16 who have adopted mechanical four-wheel brakes.

**HYDRAULIC BRAKE  
COMPANY**

5835 RUSSELL ST. DETROIT, MICH.



# LOCKHEED

## Hydraulic Four Wheel Brakes



# Current Passenger Car Specifications

(This list comprises cars distributed on a national basis)

MAKE AND MODEL		TIRES			ENGINE										Electrical System		Clutch	Gear-set	Universal Joints	REAR AXLE		BRAKES			Steering Gear	Rear Springs
		Wheelbase (Ins.)	Standard Size (Ins.)	Balloon Equipment	Make	Model	Number of Cylinders, Bore and Stroke (Ins.)	Rated Horsepower, N.A.C.C.	Valve Arrangement	Piston Material	Number of Main Crankshaft Bearings	Oiling System	Carburetor Make	Ignition System Make	Generator and Starter Make	Type and Make	Make	Type and Make	Type and Make	Gear Ratio	Foot, Type and Location	Hand, Type and Location	Four Wheel Brake Type	Make	Type and Length	
Paige.....	131	33x4 1/2	Yes*	Cont	Spec	70	6-3 1/2 x 5	33.75	L	C	4	PC	Ray	A-K	Rem	D-Lon	W-G	M-Mec	1 1/2 Tim	4.90	E-R	I-R	None	Gem	S-61 1/2	
Peerless.....	70	126	33x6.2	Yes	Own	70	6-3 1/2 x 5	29.40	L	C	7	PC	Joh	Del	Del	D-Own	Own	M-Spi	1 1/2 Tim	4.66	E-F	I-R	Hyd	Gem	S-54	
Peerless.....	66	128	33x5	Yes*	Own	66	8-3 1/2 x 5	33.80	L	C	3	PC	Bal	Del	Del	D-Own	Own	M-Spi	3/4 Tim	4.90	E-R	I-R	Hyd*	Gem	S-60	
Pierce-Arrow.....	33	138	33x5	No	Own	33	6-4 x 5 1/2	38.40	T	C	7	FP	Own	Del	Del	D-Own	Own	M-Spi	1 1/2 Tim	4.29	E-R	I-R	Mec*	Own	S-	
Pierce-Arrow.....	"80"	130	32x5.7	Yes	Own	"80"	6-3 1/2 x 5	29.40	L	C	7	PC	Own	Del	Del	P-B&B	B-L	M-Spi	1 1/2 Tim	4.45	I-F	I-R	Mec	Gem	S-56 1/2	
Premier.....	6-D	126 3/4	32x4 1/2	Yes*	Own	6-D	6-3 1/2 x 5 1/2	27.34	I	A	3	PC	Str	Del	Del	P-B&B	Own	M-Blo	3/4 Col	4.70	E-R	I-R	Mec*	Own	S-57 1/2	
R & V Knight.....	H	124	32x4 1/2	No	Own	Kni	6-3 1/2 x 4 1/2	29.40	X	C	4	PC	Str	A-L	A-L	P-B-L	B-L	M-Spi	1 1/2 Tim	5.40	E-R	I-R	None	Jac	S-61	
Reo.....	T6	120	32x6	Yes	Own	T6	6-3 1/2 x 5	24.34	G	A	4	PS	Ray	NE	NE	D-Own	Own	M-Spi	1 1/2 Tim	4.70	E-R	I-R	None	Own	S-54 1/2	
Revere.....	M	131	32x4 1/2	Yes*	Mons	4	4-4 1/2 x 6	30.63	H	A	2	PS	Str	Bos	Wes	D-B-L	B-L	M-Spi	3/4 Tim	3.44	E-R	I-R	None	Gem	S-58	
Rickenbacker.....	C	117	32x4	Yes*	Own	C	6-3 1/2 x 4 1/2	23.44	L	C	3	PC	Str	Bos	Bos	P-Own	Own	M-Mec	3/4 Tim	4.60	I-F	E-T	Mec	Gem	S-57	
Rickenbacker.....	A	121 1/2	33x4 1/2	Yes*	Own	A	8-3 x 4 1/2	28.60	L	C	9	PS	Zen	Bos	Del	M-Own	Own	M-Mec	3/4 Tim	5.10	I-F	E-T	Mec	Gem	S-59	
Roamer.....	6-54-E	118	32x4 1/2	No	Cont	12XD	6-3 1/2 x 5 1/2	29.40	L	A	3	PS	Str	Spl	Wes	Own	P-B&B	Ful	R-M&E	3/4 Tim	4.60	E-R	I-R	Mec*	Jac	V-55 1/2
Roamer.....	4-75-E	125	32x4 1/2	No	Dues	G1	4-4 1/2 x 6	28.90	H	A	3	FP	Str	Bos	Wes	D-B-L	B-L	R-M&E	3/4 Tim	4.63	E-R	I-R	Mec*	Jac	V-55 1/2	
Rollin.....	G	112	21x5 1/2	Yes	Own	G	4-3 1/2 x 4 1/2	16.90	L	A	4	PC	Til	Con	Dyn	P-B&B	Mun	R-Sne	1 1/2 Sal	5.10	E-F	E-F	Mec	Dit	S-46 1/2	
Rolls-Royce.....	40-50	143 1/2	33x5	No	Own	40	6-4 1/2 x 5 1/2	48.60	L	A	7	FP	Own	Con	Dyn	P-B&B	Own	M-Own	F Own	3.72	I-R	I-R	None	Own	V-54 1/2	
Stanley.....	750	130	33x5.7	Yes	Own	750	2-4 x 5	13.00	X	C	2	Non	Non	Bij	Non	Non	Non	Non	1 1/2 Own	4.50	E-R	I-R	None	Own	S-50	
Star.....	4	102	30x3 1/2	No	Cont	Spec	4-3 1/2 x 4 1/2	15.63	L	C	3	PS	Til	A-L	A-L	P-Own	War	M-Spi	3/4 Ad	4.87	E-R	I-R	Mec*	War	S-49 1/2	
Stearns-Knight.....	SKL4	119	33x4 1/2	No	Own	Kni	4-3 1/2 x 5 1/2	22.50	X	C	4	PC	Sch	A-K	A-L	D-Own	Own	R-Cl	1 1/2 Own	4.50	E-R	I-R	Hyd*	Own	V-50	
Stearns-Knight.....	6	130	33x5	No	Own	Kni	6-3 1/2 x 5	25.35	X	C	4	PC	Sch	A-K	A-L	D-Own	Own	R-Cl	1 1/2 Own	4.70	E-R	I-R	Hyd*	Own	V-50	
Sterling-Knight.....	125	32x4 1/2	Yes*	Own	Kni	G	6-3 1/2 x 4 1/2	25.35	X	C	7	FP	Str	Wes	Wes	D-Ful	Ful	R-Cl	1 1/2 Tim	4.66	E-R	I-R	Mec*	Ros	S-58	
Stevens Duryea.....	G	138	33x5	No	Own	G	6-4 1/2 x 5 1/2	47.25	L	C	4	PC	Str	Bos	Bos	D-B-L	B-L	M-Spi	1 1/2 Tim	3.70	E-R	I-R	None	Ros	S-57 1/2	
Studebaker.....	Light Six	112	31x4	No	Own	EM	6-3 1/2 x 4 1/2	23.44	L	C	4	PS	Str	Wag	Wag	P-Own	Own	R-The	1 1/2 Own	5.00	E-R	I-R	None	Own	S-50	
Studebaker.....	Spec. Six	119	32x4	No	Own	EL	6-3 1/2 x 5	29.40	L	C	4	PS	Str	Wag	Wag	P-Own	Own	M-Spi	1 1/2 Own	4.33	E-R	I-R	None	Own	S-56	
Studebaker.....	Big Six	126	33x4 1/2	No	Own	EK	6-3 1/2 x 5	36.04	L	C	4	PS	Bal	Wag	Wag	P-Own	Own	M-Spi	1 1/2 Own	3.71	E-R	I-R	None	Own	S-56	
Stutz.....	690	120	32x4 1/2	No	Own	6-90	6-3 1/2 x 5	27.34	I	B	3	FP	Str	Rem	Rem	P-B&B	W-G	M-Mec	1 1/2 Tim	4.66	E-R	I-R	None	Gem	S-62	
Stutz.....	KLDH	130	32x4 1/2	No	Own	KLDH	4-4 1/2 x 6	30.63	T	C	3	PC	Str	Del	Rem	D-W-G	Own	M-Har	3/4 Tim	3.75	I-R	I-R	None	Gem	S-60	
Stutz.....	695	130	32x4 1/2	Yes*	Own	695	6-3 1/2 x 5	29.40	I	C	3	PC	Str	Rem	Rem	P-B&B	W-G	M-Uni	1 1/2 Tim	4.66	E-R	I-R	Hyd*	Gem	S-61 1/2	
Templar.....	122	33x4	No	Own	6-3 1/2 x 5	27.34	L	C	....	PS	T1	Dyn	Dyn	Dyn	Dyn	P-M&E	War	R-Sne	3/4 Sal	5.10	I-F	E-T	Mec	Ros	S-54	
Valie.....	56&58	118	32x4	Yes*	Own	56	6-3 1/2 x 4 1/2	24.38	I	C	4	FP	Str	Wes	Wes	P-B&B	Dur	M-Thi	1 1/2 Own	5.10	E-R	I-R	Hyd*	Ros	S-55	
Westcott.....	48	125	32x4 1/2	Yes*	Cont	12X	6-3 1/2 x 5 1/2	29.40	L	A	3	PS	Ray	Del	Del	P-B&B	B-L	M-Pet	1 1/2 Tim	4.45	E-R	I-R	Mec*	Gem	S-59	
Westcott.....	44	120	32x4 1/2	Yes*	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-B&B	War	M-Pet	1 1/2 Col	4.90	E-R	E-T	Mec*	Gem	S-57 1/2	
Westcott.....	60	118	32x4	Yes*	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-M&E	War	M-Pet	1 1/2 Col	4.66	E-R	E-T	Mec*	Gem	S-57 1/2	
Wills Sto. Claire. A&B68	121	32x4 1/2	Yes*	Own	68	8-3 x 4 1/2	33.80	I	C	3	FP	Sch	De	Del	Del	P-Own	Own	M-Spi	1 1/2 Eat	4.45	E-R	I-R	None	Own	S-54 1/2	
Willys Knight.....	64&67	118	32x4	No	Own	64	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	R-Own	3/4 Own	4.44	E-R	I-R	None	Own	S-55	
Willys Knight.....	64&67	124	32x4 1/2	No	Own	64	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	R-Own	3/4 Own	4.44	E-R	I-R	None	Own	S-55	
TAXICABS																										
Checker.....	117	33x4 1/2	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	C	3	PC	Zen	Sci	Wes	D-Ful	Ful	Blo	3/4 Col	4.87	E-R	I-R	None	Jon	S-57 1/2		
Driggs.....	108 1/2	30x3 1/2	No	Own	4-2 1/2 x 4 1/2	11.03	L	C	....	PS	Zen	Bos	Bos	D-Ful	Ful	Spi	3/4 Own	4.74	E-R	I-R	None	Own	S-			
Eicar.....	4	118	33x4 1/2	No	Lyc	CF	4-3 1/2 x 5	21.05	L	A	5	PC	Car	Del	Del	P-B&B	Mun	Pet	3/4 Sal	4.75	E-R	I-R	None	CAS	S-51	
Eicar.....	6	118	33x4 1/2	No	Cont	8R	6-3 1/2 x 4 1/2	27.34	L	C	4	PC	Str	Del	Del	P-B&B	War	Spi	3/4 Sal	4.75	E-R	I-R	None	Gem	S-52	
Kelsey.....	E	112	32x4	No	Lyc	CH	4-3 1/2 x 5	19.60	L	A	5	PC	Zen	Bos	Bos	P-B&B	W-M	M-Spi	3/4 Sal	5.10	E-R	I-R	None	Lav	S-55	
Pennant.....	115	33x4 1/2	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Bos	Bos	Wes	D-Ful	Ful	Blo	3/4 Col	4.87	E-R	I-R	None	Jon	S-57	
Pennant.....	4A	118	33x4 1/2	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Bos	Bos	D-Ful	Ful	Blo	3/4 Col	4.70	E-R	I-R	None	Own	S-57 1/2	
Rauch & Lang.....	T	112	32x4	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Bos	Dyn	P-Det	Det	Spi	1 1/2 Sta	5.10	E-R	E-T	None	Gem	S-59 1/2	
Rauch & Lang.....	**	102	33x4 1/2	No	Own	Electric	6-3 1/2 x 5	24.30	G	A	4	PS	Sch	N-E	N-E	D-Own	None	None	Own	8.60	.....	.....	None	Own	S-55	
Reo.....	V	113	33x4 1/2	Yes*	Own	T-6	6-3 1/2 x 5	24.30	G	A	4	PS	Sch	N-E	N-E	D-Own	None	None	Own	8.60	.....	.....	None	Own	S-55	
Traveler.....	108 1/2	32x4	No	Buda	WTU	4-3 1/2 x 5 1/2	22.50	L	B	3	PC	Zen	Eis	Eis	B-L	W-M	Spi	Col	.....	.....	E-R	I-R	None	Gem	S-	
White.....	15A	119	34x4 1/2	No	Own	64	4-3 1/2 x 5 1/2	22.50	L	C	3	Sp	Zen	N-E	A-L	P-Own	Own	Own	1 1/2 Own	5.12	E-R	I-R	None	Own	S-55	
Willys Knight.....	A.B.C.	118	32x4 1/2	Yes*	Own	64	4-3 1/2 x 4 1/2	21.03	X	C	3	PS	Til	A-L	A-L	D-Own	Own	Own	3/4 Own	5.12	E-R	I-R	None	Own	S-55	
Yellow.....	O-4	109	32x4 1/2	No	Cont	V7	4-3 1/2 x 5	18.23	L	C	3	PC	Zen	Bos	N-E	D-B-L	B-L	Spi	1 1/2 Tim	4.90	E-R	E-T	None	Gem	.....	
Yellow.....	A-2	109	29x4 1/2	Yes	Cont	V7	4-3 1/2 x 5	18.23	L	C	3	PC	Zen	Bos	N-E	D-B-L	B-L	Spi	1 1/2 Tim	4.20	E-R	E-T	None	Gem	56	

## TAXICABS

### ABBREVIATIONS—

\*—Electric  
 †—Generator only  
 \*—At extra cost  
 ‡—On Phaeton models  
 A—Aluminum  
 Anst—Ansted  
 Ad—Adams  
 A-K—Atwater-Kent  
 A-L—Auto-Lite  
 B—Semi Steel  
 Bal—Ball & Ball  
 B & B—Borg & Beck  
 B-F—Both Internal and External  
 Four Wheels  
 Bij—Bijur  
 B-L—Brown-Lipe  
 Blo—Blood  
 Bos—Bosch  
 C—Cast Iron  
 Car—Carter  
 Cl—Climax  
 Col—Columbia  
 Con—Connecticut  
 Cont—Continental

### D—Multiple Disk

Del—Delco  
 Det—Detroit  
 De J—De Jon  
 Dit—Ditwiler  
 Doo—Dooley  
 Dtl—Detlaff  
 Dues—Duesenberg  
 Dur—Durstun  
 Dyn—Dyneto  
 E—Full Elliptic  
 E-F—External Four Wheels  
 E-R—External Rear Wheels  
 E-T—External Transmission  
 Ent—Eaton  
 F—Full Floating  
 Fall—Falls  
 Fil—Flint  
 FP—Full Pressure to all bearings including wrist pins  
 Ful—Fuller  
 1/2 F—Semi-Floating  
 3/4 F—Three-Quarter Floating  
 G—Head and Side  
 G-D—Gray & Davis  
 Gem—Gemmer

### G-L—Grant-Lees

Goo—Goodrich  
 H—Horizontal  
 Har—Hart  
 Hol—Holley  
 Hoo—Hoosier  
 H-Sp—Herschell-Spillman  
 Hyd—Hydraulic  
 I—In Head  
 I-F—Internal Four Wheels  
 I-R—Internal Rear Wheels  
 J—Three-Quarter Elliptic  
 Jac—Jacor  
 Jax—Jaxon  
 Joh—Johnson  
 Jon—Jones  
 K—Cone  
 Kin—Kingston  
 L—L Head  
 Lav—Lavine  
 Lon—Long  
 L-N—Leeca-Neville  
 Lyco—Lycorning  
 Mar—Marvel  
 M—Metal

### M & E—Merchant & Evans

Mec—Mechanics  
 Mons—Monson  
 Mun—Muncie  
 N—Platform  
 Non—None  
 N. E.—North East  
 Nor—Northway  
 O—Special Type  
 P—Single Plate



The Oldsmobile Company  
Passenger Cars Trucks  
Portland, Oregon

June 29, 1924

Olds Motor Works,  
Lansing, Michigan.

Attention - Mr. Guy H. Penaley  
General Sales Manager

Gentlemen:

We cannot help congratulating the officials of the Olds Motor Works upon their success in manufacturing an automobile as good as the Model 30, at such a remarkably low price.

Sales resistance is less on this model than any other car we have ever sold -- not only from our retail standpoint, but also in our dealer organization.

The public wants a good, light six-cylinder automobile at a price within its reach, and dealers throughout our territory are anxious to obtain the Oldsmobile franchise as they can see the advantages it will give them.

Yours very truly,

THE OLDSMOBILE COMPANY  
of Oregon

By

Manager

EEO-T

"OLDSMOBILE WINS BY COMPARISON."

## "Sales Resistance Is Less"

Just as Mr. Cohen says: "the public wants a good, light six-cylinder automobile at a low price"—that's why 40,000 new Oldsmobile Sixes have been sold—with good profit to our dealers.

OLDS MOTOR WORKS, Lansing, Michigan

# OLDSMOBILE

# SIX

PRODUCT OF GENERAL MOTORS



# ROLLIN

## The Easy Way to do Business

It's easier to sell the most advanced car—

It's easier to sell a car that is sought after—

It's easier to sell a car that is highly regarded and widely discussed—

All of these conditions surround the Rollin — the most advanced car of the year.

European Type Motor

4-Bearing Crankshaft

Aluminum Alloy Pistons and Connecting Rods

Force-Feed Lubrication

New Carburetor and Manifold

25 to 30 Miles Per Gallon of Gasoline

Balloon Tires

4-Wheel Brakes

Transverse Rear Spring

We have room for a few more progressive dealers. If Rollin is not represented in your town, we suggest you get in touch with us today.

Touring Car	- - - -	\$ 995
Three Seated Coupe Roadster	• - - -	1195
Five Passenger Sedan	- - - -	1295

*Prices f. o. b. factory. Tax extra*

**THE ROLLIN MOTORS COMPANY**  
CLEVELAND, OHIO





# The New Stromberg

## Electrically Driven

## Windshield Wiper

An Automatic Windshield Wiper unequalled for efficient service in removing slush, snow, rain or mist from the windshield. No longer need car owners take risks. They may now install the Stromberg and be assured a clear vision in stormy

weather—at a touch of the button. Because it's electrically driven from the battery. Consumes less current than one headlight. Silent, powerful and positively continuous under all engine speeds, regardless of road or weather conditions—never fails—never disappoints.

### 10 Points of Stromberg Superiority

- 1 Continuous operation at all engine speeds.
- 2 Dependable "sweep" of Wiper Arm due to use of high-speed-series-type electric motor.
- 3 Special patented drive mechanism assures smooth, steady wiping motion.
- 4 "Spring tension" Wiper Arm maintains constant pressure against the glass.
- 5 Silent operation.
- 6 Low current consumption.
- 7 Compact design of Wiper Body permits "close fit" to Windshield Frame.
- 8 Sturdy construction—long life.
- 9 Operates, if desired, when car is "parked."
- 10 Easily installed on all cars. Only two small holes to drill.

# \$9.00

### Live Dealers! Increase Your Profits

Meet the enormous car owner demand for a *dependable* Windshield Wiper with the Stromberg. Easily installed. Individually packed in attractive cartons. Furnished for 6 or 12 volt battery. Carries the liberal Stromberg Guarantee. Line up NOW—with this fast-selling necessary accessory. Write our nearest branch, or direct to us. Complete Sales Plan will reach you promptly.



### Branches:

New York  
250 W. 57 St.  
Boston  
66 Brookline Ave.

Detroit  
2739 Woodward Ave  
San Francisco  
Polk and Ellis Sts.

Los Angeles  
1200-4 Grand Ave.  
Portland  
8th and Flanders Sts.

Seattle  
1400 12th Avenue  
London, England  
173-175 Cleveland St., W. L.

## STROMBERG MOTOR DEVICES CO.

## 58-68 East 25<sup>th</sup> Street, Chicago, U.S.A.

### MANUFACTURERS OF THE STROMBERG CARBURETOR



## Why Not Be a STAR Dealer?

UNDER the direction of the undersigned a new and aggressive sales campaign is in operation to place the Star Car everywhere in its deserved position in the low-priced field.

In all territory not adequately covered we seek dealers who appreciate the *profit advantages* resulting from

Quality of Product

Proper Manufacturing and  
Selling Policies

Strong Leadership

Those who experienced or deserved exceptional dealer profits under such conditions will clearly anticipate the future progress of the Star Car and will act accordingly.



Vice-President

DURANT MOTORS · INC ·

Fisk Building, 57th Street and Broadway, New York, N. Y.

# ASK THE BRITISH TANK CORPS/



ITS WAR RECORD PROVES THAT

**Thermoid HARDY**

**OUTVEARS METAL**

**ABSORBS JOLTS**

**REQUIRES NO OIL OR CARE**

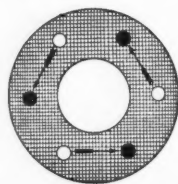


## **Thermoid-Hardy** **Universal Joint**



#### Some Thermoid-Hardy Users

Allis Chalmers Mfg. Co.  
American Bosch Magneto Co.  
American Motors Corp.  
Anderson Motor Co.  
The Autocar Co.  
Available Truck Co.  
Barley Motor Car Co. (Roamer)  
Bartlett Motor Truck Co.  
Chandler Motor Car Co.  
Cleveland Automobile Co.  
Continental Motor Co.  
Cooks Motor Corp.  
Cowan Truck Co.  
Crow-Elkhart Motor Corp.  
Jas. Cunningham Son & Co.  
Curtiss Aeroplane & Motor Co.  
Dart Truck & Tractor Corp.  
Day-Elder Motor Co.  
Diamond T Motor Car Co.  
Doane Motor Truck Co.  
Dort Motor Car Co.  
H. H. Franklin Mfg. Co.  
Garford Motor Truck Co.  
Gramm-Bernstein Motor Truck Co.  
Gray Motors Corp.  
Hatfield-Penfield Steel Co.  
Hawkeye Truck Co.  
Haynes Automobile Co.  
Hendrickson Motor Truck Co.  
Holt Mfg. Co.  
Hupp Motor Car Corp.  
Indiana Truck Co.  
International Harvester Co., of A. Inc.  
International Motor Co.  
Jackson Motors Corp.  
Jordan Motor Car Co.  
Kelly-Springfield Motor Truck Co.  
Kentucky Wagon Mfg. Co., Inc.  
Kissel Motor Car Co.  
Locomobile Co.  
Maxwell Motors Corp.  
McFarlan Motor Car Co.  
Mercer Motors Co.  
Moreland Motor Truck Co.  
Nelson & LeMoon  
E. A. Nelson Automobile Co.  
O'Connell Motor Truck Co.  
Olds Motor Works  
Packard Motor Car Co.  
Parker Motor Truck Co.  
Patriot Motors Co.  
Pierce-Arrow Motor Car Co.  
Reo Motor Car Co.  
Republic Motor Truck Co.  
Rochester Motor Corp.  
Root & Van Dervoort Eng. Co.  
Sanford Motor Truck Co.  
Stewart Motor Corp.  
Stoughton Wagon Co.  
Studebaker Corp.  
Superior Products Mfg. Co.  
Traffic Motor Truck Co.  
Transport Truck Co.  
United Motors Co.  
Velie Motor Corp.  
Walter Motor Truck Co.  
Wichita Motors Co.  
Wilcox Trux Co.  
Willys-Overland, Inc.  
Worthington Pump & Machinery Corp.  
Yellow Cab Co.



The threads in an ordinary fabric joint run in two directions only. (See diagram.) Thermoid-Hardy's fan-wise construction distributes the strain evenly. Not only does this fan-wise construction add immensely to the strength of the disc, but keeps it true.



Waste or selvage edges

## You Can't Show Thermoid-Hardy Any- thing New in the Way of Service

**Y**OU know better than we just how severe your service requirements are—just how exacting your standards of performance. But we don't see how you can put Thermoid-Hardy to more grueling tests than it has already passed with flying colors.

Thermoid-Hardy has jumped the shell craters of Flanders on ponderous British tanks. It has driven the Class AA trucks of the American Expeditionary Forces. It has carried a powerful racing car for 10,000 miles at an average speed of 3200 revolutions per minute without showing the slightest trace of wear or strain. 60,000 miles of hard service on truck or car, without any adjustment or care whatever, is by no means an unusual record for a Thermoid-Hardy Joint. But make your own tests. Compare Thermoid-Hardy with any other joint—metal or fabric. We are confident of the result.

#### THERMOID RUBBER COMPANY, Trenton, N. J.

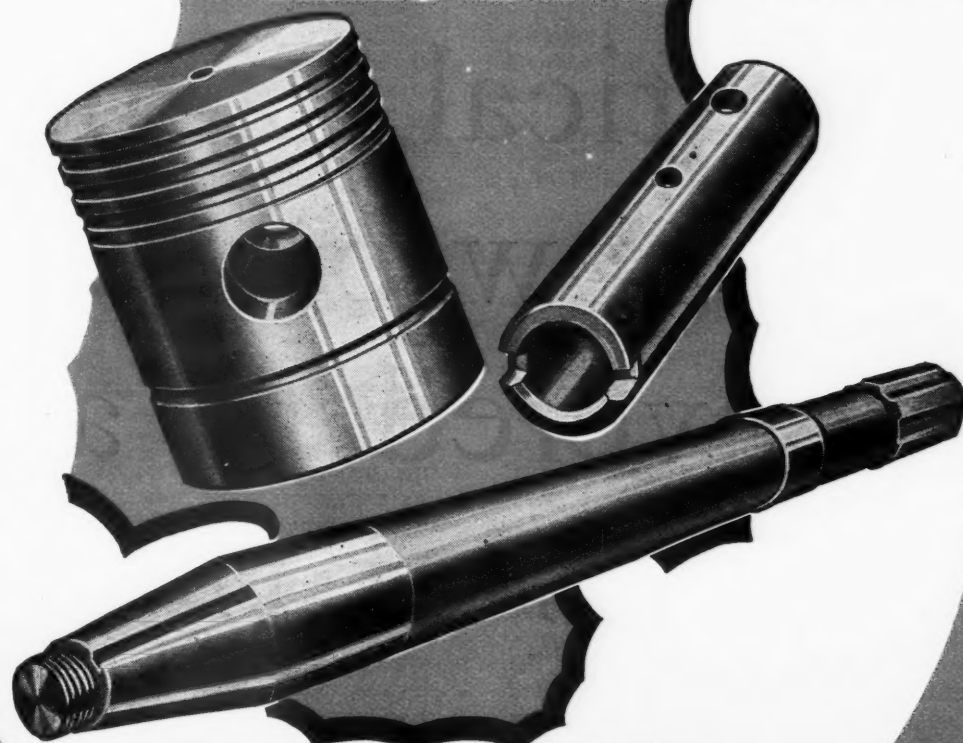
New York, Chicago, Los Angeles, Detroit, Atlanta, Seattle, Kansas City,  
Boston, San Francisco, Cleveland, London, Paris, Turin

*Makers of Thermoid Brake Lining, Rexoid Transmission  
Lining, Thermoid Tires*

# Thermoid-Hardy Universal Joint

# Arrow Head

Pistons  
Piston Pins  
Axle and Drive Shafts



**Dependable  
Products**

ARROW HEAD STEEL PRODUCTS CO.  
MINNEAPOLIS, MINN. U.S.A.



# Rickenbacker

A • CAR • WORTHY • OF • ITS • NAME

The New  
Rickenbacker  
“Vertical Eight”  
is now being  
delivered to all  
parts of the  
country.



# Here is the Full Story of this Rickenbacker "Vertical 8 Superfine"

*Models*—Sport Phaeton, 5-passenger; Sedan, 5-passenger; Coupe, 4-passenger.

*Engine*—Designed and Built in Rickenbacker Shops—Rickenbacker 8-cylinders in a row—Vertical; cast en bloc; cylinders integral with crankcase. L-type-head removable, 3" bore, 4 $\frac{3}{4}$ " stroke. B. H. P., 70. Displacement, 268 cu. in. Push rod guides, 2 groups of 6, one of 4, easily removable. Two fly-wheels—eliminate "periods of vibration."

*Camshaft Drive*—1 $\frac{1}{2}$ " Silent Chain. Camshaft enclosed in separate compartment; completely immersed in oil at all times.

*Crankshaft*—Drilled full length for oil. Counter-balanced throughout; supported in nine bearings; balanced statically and dynamically. Oiled by 45 oil holes. High pressure oiling system.

*Ignition*—Dual, Rickenbacker-Delco Special; two breakers on one rotor. Dual coil, dual condenser.

*Firing Order*—16258374.

*Engine Lubrication*—High pressure and splash.

*Starting and Lighting*—Bosch. U. S. L. storage battery. 170 ampere hour.

*Carburetor*—Dual, "Rickenbacker-Zenith" (airplane type), with fixed jets and adjustable only for idling. Equipped with efficient air cleaner, reducing carbon and preventing cylinder piston ring wear.

*Chassis Lubrication*—Alemite.

*Brakes*—Foot brake on all four wheels. Full anti-rattle equipment. Equalized by cut gears in differential type equalizer. Each set of brake shoes equalized within themselves; 6 equalizers all told. Emergency on transmission, allowing two complete sets of brakes or a total of five breaking units.

*Steering Gear*—Gemmer. Ratio 11 $\frac{1}{2}$  to 1 on balloon tire equipped cars; 9 to 1 on standard tire cars. Type, worm and gear. Improved type of control levers on steering gear post. (Quadrant removed.)

*Frame*—Pressed steel, 8"x2 $\frac{1}{2}$ " to 4" wide,  $\frac{1}{8}$ " thick.

*Speedometer*—Stewart-Warner.

*Upholstery*—Touring Phaeton, best quality leather obtainable; Sedan and Coupe, in rich mohair.

*Rear Axle*—Rickenbacker. Type, floating. Spiral bevel gears. Pressed steel housing. Shaft, 1 $\frac{1}{2}$ ". Double oil seal. Patented automatic pinion bearing lubrication.

*Front Axle*—Rickenbacker. Drop forged I-beam. Ball bearing steering spindles. Equipped with mechanical brakes, internal expanding type of course.

*Wheelbase*—121".

*Tires*—Standard equipment—33x4 $\frac{1}{2}$ " cord. Balloon 32x5.77. Five tires furnished with Balloon equipment.

*Springs*—Rear, semi, 59" x 2 $\frac{1}{2}$ "; front, semi, 38" x 2".

*Wheels*—Steel Disc. No option.

*Standard Equipment*—Bumpers—front and rear; Automatic Windshield Cleaner; Cigar Lighter; Trouble and Spot Light; 8-day Elgin Clock; Moto-Meter; Moto-Meter Wings; Drum Tire Cover with lettered warning—"4-Wheel Brakes"; "Stop" Light; Heater—which is cast integral with exhaust manifold and controlled at instrument board; Aluminum toe board in two parts; Rear View Mirror; Hartford Shock Absorbers front and rear. Dual Thief-proof Lock—"Rickenbacker Co-incidental" and Ignition Lock—latest and most effective prevention of theft. Yale lock in bracket which attaches steering post to cowl-board—locks both steering wheel and ignition switch. Sedan and Coupe, Vanity Case. Sport Phaeton, Bevel Plate Windshield Wings.

*Color*—Touring Phaeton—Dublin gray, with moldings of deeper shade. Sedan and Coupe—Holland Blue.

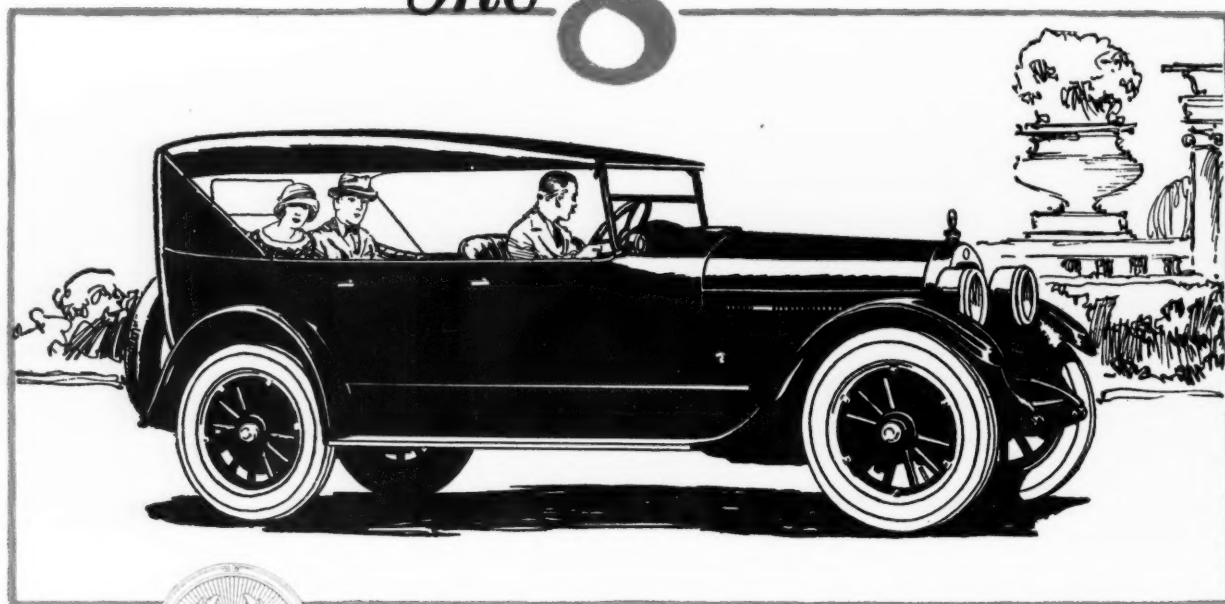
RICKENBACKER MOTOR COMPANY, DETROIT, MICH.

# Rickenbacker

A • CAR • WORTHY • OF • ITS • NAME



# Companions of Profit and Dealer who Seeks *The 8*

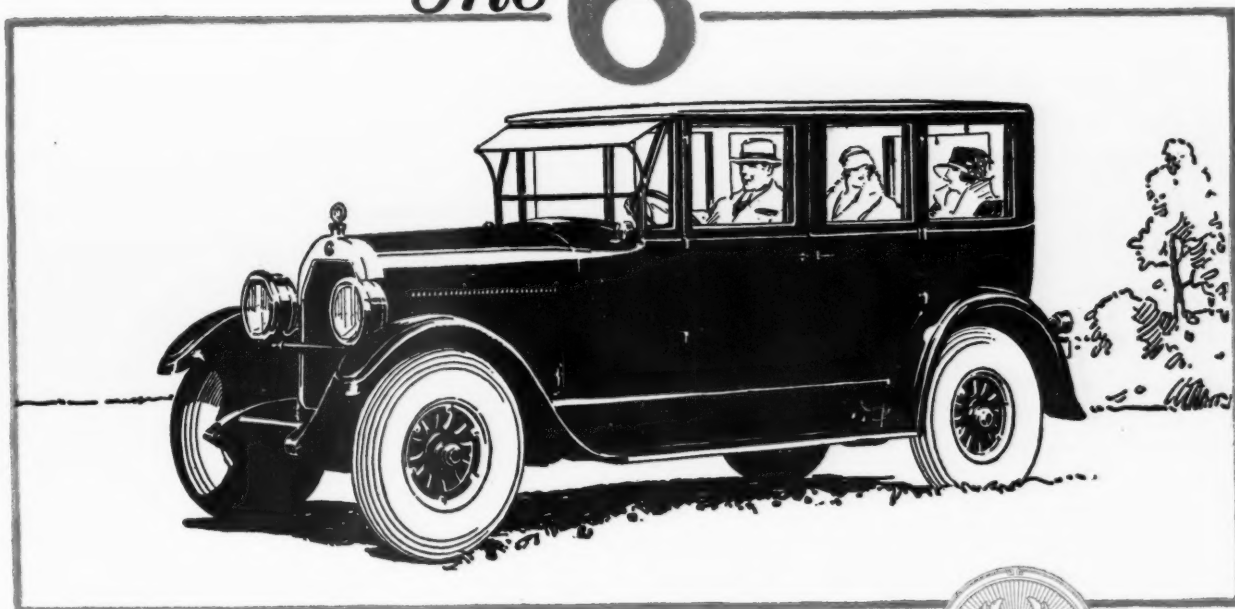


THE superb Peerless Eight and its new companion—the beautiful, roomy Peerless Six! What an ideal combination for distributors and dealers who know the value of a permanent, profitable connection. The Eight, known everywhere as a car unexcelled at any price. The Six with everything—power, speed, flexibility, comfort, beauty—at a *moderate price*. And both backed by that grand old name—Peerless.

# PEER

# *for Every Distributor* **a Permanent Car to Sell**

## *The* **6**



The advent of the new Peerless Six has materially broadened the market for the Peerless distributing force in the field. It has made possible, bigger, quicker Peerless retail sales. It has opened up many new outlets for these Peerless products. There are still a few openings for high grade sales organizations in the Peerless roster. Wire, phone or write for particulars.

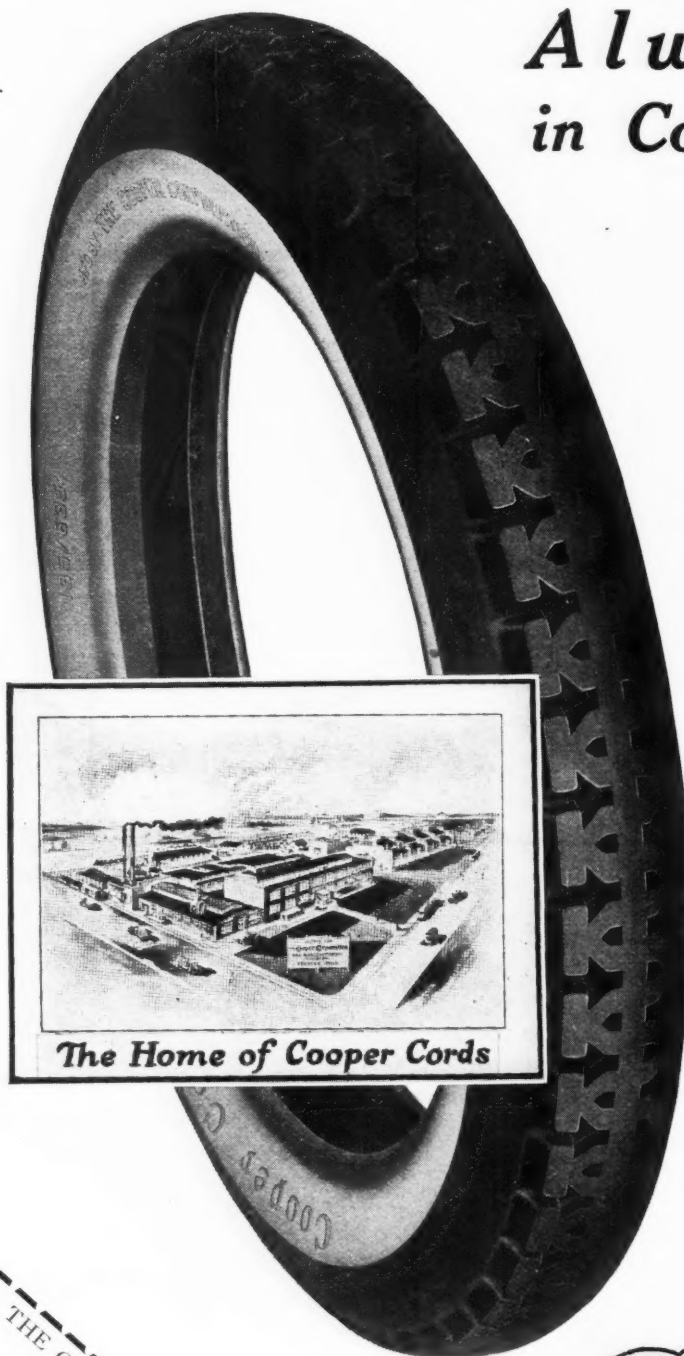
THE PEERLESS MOTOR CAR COMPANY, CLEVELAND, OHIO  
*The Matchless Peerless Eight and the New Peerless Six*

# LESS



# The demand is strong for easy riding tires!

*Always a Feature  
in Cooper Super-Size Cords*



**T**HE Cooper Dealer ties up to the popular demand for super-size tires that are supremely long wearing, easy riding and economical.

Cooper Super-size Cords are built from the choicest materials by craftsmen expert in the art of fine tire fabrication. Quality is mirrored in their appearance—smart—rugged—athletic. This first impression becomes a lasting one when thousands of extra miles are registered on the speedometer!

The Cooper Dealer has easy riding. No big inventories, a good margin to work on, helpful sales and advertising cooperation, a tire of known quality and behind it a responsible organization, responsive to the problems of its dealers.

Get the Cooper proposition and see how you can add to your tire prospects. Just fill in and mail the coupon.

## THE COOPER CORPORATION

General Offices  
Cincinnati, Ohio

Factories  
Findlay, Ohio

# Cooper

*Super-Size*

# C O R D S

THE COOPER CORP.,  
Cincinnati, Ohio.

Send me your  
proposition.

Name .....

Address .....

M.A. 8-14

"easy-riding" dealer

# OAKES SPARE TIRE AND SPARE WHEEL LOCKS

Theft Protection  
With Neatness  
and Distinction

Highly Polished  
and  
Handsomely  
Finished

Unbreakable  
Malleable  
Iron Housing  
Heavily Enameled

Dependable Lock  
Unit With  
4 Pin  
Tumbler



Demonstrated  
in a  
Minute

Sold in  
a  
Minute

Installed  
in a  
Minute

An Easy  
Profit for  
3 Minutes  
Work

Spare Tire Lock  
\$5.00  
(Ford Type, \$4)

Spare Wheel Lock  
\$5.00  
(Bar-arm Type, \$6.50)

DEALERS: Write for samples and your copy of "The Oakes Selling Plan". If your jobbers cannot supply you we will ship direct.

JOBBERs: If you do not have OAKES LOCKS write at once for samples and full details of our distributing proposition.

THE OAKES CO.  INDIANAPOLIS

Established 1910

Oakes Locks are Standard Equipment on 15 Makes of Cars

Manufacturers Radiator Cooling Fans, Spare Tire Carriers, Spare Tire and Spare Wheel Locks



# *Service Stations —* **Take up the Slack**



**F**OR years winter has been the slack season for service stations. Little business but plenty of rent! Few cash customers but lots of overhead! The Perfection Heater has cured the situation for many and many a service station. Let us tell you how it can help. Use the coupon on the other page.

**PERFECTION**  
*For Motor*

# in your Winter Sales

**W**INTER is far from dull for the service station that handles Perfection Heaters.

With the first cold snap the Perfection demand opens up. Car owners drive in. Other dealers send cars to be Perfection equipped. In many cases dealers operating Perfection service stations have been forced to turn down jobs almost every day throughout the winter.

Every motorist realizes the tremendous advantage of riding in a heated car on cold days—and "heated car" to 90% of the people means "Perfection-heated."

There is a tremendous demand for

the nationally-known, nationally-advertised Perfection Heater. This demand has been growing and growing for years. And good dealers everywhere are capitalizing it—making it pay them definite, tangible profits in the dull season of the year.

Don't be at the mercy of the calendar another year. Don't let winter cut into your income the way it has done in the past.

Send the coupon below. It will bring you full information about how the Perfection proposition will make money for you. Mail it today.

Get set now for cold weather profits.

THE PERFECTION HEATER & MANUFACTURING CO.

6545 Carnegie Avenue . . . . . Cleveland, Ohio

Manufactured in Canada by Richards-Wilcox Canadian Co., Ltd., London, Ont.



# HEATERS

*Cars*

The Perfection Heater  
& Manufacturing Co.

6545 Carnegie Ave.  
Cleveland, Ohio.

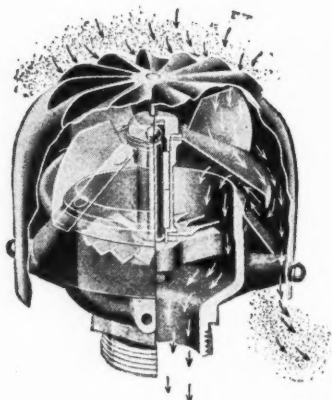
Send us, without obligation,  
the story on how to make  
money this winter.

Name .....

Address .....

City .....





## An Enemy of the Motor —A Profitable Friend of Yours

**O**RDINARY road dust an enemy of the motor? It most surely is—a body of air a mile long and a foot wide is sucked into the engine through the carburetor every hour your motor is running. The dust in this air mixes with the oil and forms an abrasive that grinds away the moving parts of the motor and shortens its life.

Dust decreases the lubricating action of the oil and forms 85% of the power-destroying hard carbon. The motor consumes 15 times as much air (by weight) as gasoline, and this air is heavily charged with that enemy of the motor—Dust.

Dust a friend of yours? You can make it so, and a mighty profitable one, by selling and installing United Air Cleaners, the safeguard of the motor. Tell the car owner what dust is doing to his motor—tell him that a United Air Cleaner will take 99% of the dust from the air; that it will give longer life to the engine; cut down oil consumption and decrease carbon formation.

Tell him how easily it is installed. If he drives a Ford, it will only cost him \$5—other cars slightly more. You will find that car owners will quickly see the advantage of the United Air Cleaner. Every car needs one—every motorist wants one. We have a liberal and attractive dealer proposition for you. Mail the coupon today.

UNITED MANUFACTURING & DISTRIBUTING CO.  
9705 Cottage Grove Avenue, Chicago, Illinois

*The* UNITED  
AIR CLEANER  
“Dustless Air to the Motor”



### Why Mix Dust with Motor Oil?

The above graphic picturization and heading told the United Air Cleaner story to the millions of readers of the July 19th issue of the Saturday Evening Post. This is one of a series of advertisements that will appear in the Saturday Evening Post and other national publications. Send the coupon and learn how United Air Cleaners will benefit your motor.

UNITED MFG. & DIST. CO.  
9705 Cottage Grove Ave., Chicago, Ill.

Gentlemen:

Without obligation, I would like to learn more in detail about the UNITED AIR CLEANER and your dealer proposition.

Name .....

Address .....

Business .....

M. A. 8-14.

# "We Could Not Improve the Roller Brush—So We Improved the Case!"

T. C. Ingram, auto supply dealer at Wagram, N. C., gave us the above slogan. He also writes: "Your new timer is the best thing ever put on a Ford."

No wonder! The famous, dependable old Milwaukee Timer is now Bakelite-cased!

Short-circuit-proof. Longer lasting. Finer looking. Same old price. Advertised everywhere, more than ever.

This is the Milwaukee Timer's greatest year. Dealers are doubling and tripling timer sales. There are some good timer months ahead. Feature the Milwaukee in window and counter. Push it—it's a volume seller at a real profit. If not already stocked, order from your jobber today.

**Milwaukee Motor Products, Inc.**

MILWAUKEE

WISCONSIN

## MILWAUKEE TIMER *for* FORD

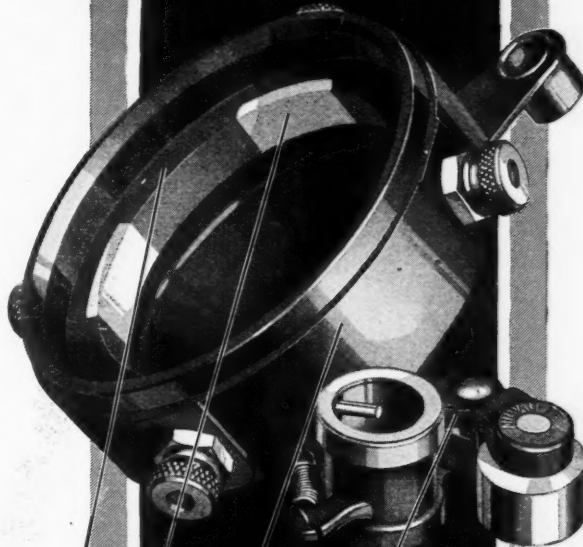
Bone-hard fiber race pressed to a tight fit in the Bakelite case. Remains satin-smooth for thousands of miles.

Fine steel contact points with welded stems. Locked in position. Extra thick throughout for longest life.

Only Bakelite case on a Ford-type timer. Makes the Milwaukee absolutely "short-proof." Puts it in a class with high-priced ignition units.

Famous Milwaukee Timer brush assembly. Two bronze castings, fitted and gauged for accurate alignment. Hardened steel roller, finished like a ball bearing.

**Display Cut-out—Free!** Three-color Window and Counter display. Holds a Milwaukee Timer from stock. New process—oil colors, extra brilliant, washable. Sent free, postpaid. Write us direct.



No  
increase  
in price.  
Retails  
at

**\$2**

(\$2.75 in  
Canada)





# On-the-Spot

Dutch Brand Radiator-Seal Compound supplied in liquid or powder form. Easy to use, safe, stops leaks quickly.



Simplify your selling with these fast moving Dutch Brand Motor Aids on your counters. For easy on-the-spot profits on a small stock investment our line is ideal. Every item a genuine necessity—every car creates demand for them. Our unusual counter cartons help you sell with little effort. Order from your jobber at once.



Dutch Brand Auto Top and Cushion Coating makes tops and cushions look like new and last longer. Easily applied by motorists. Makes them want to use it, too.



"7711" Rubber Cement for tire patches, top repairs, etc. Useful for all kinds of rubber patching. Sticks and stays stuck. Indispensable.

With Sure Seal Combination Tube and Casing Repair Outfit motorists are equipped to repair inner tubes as well as casing cuts. Contains high quality rubber cement and patching rubber, plus tube of 2 in 1 Tire Cut Filler.



## DUTCH BRAND MOTOR AIDS

# PROFITS

## By "On-the-Spot" Profits We Mean:

Cash profits from goods you can sell easily, cleanly, quickly, over your counters,—

Small package units, in striking display cartons, widely needed, strongly advertised, priced right, of high quality to bring "come-again" sales.

And that exactly describes the famous Dutch Brand Motor Aids. To sell them takes little effort. Our cartons get attention, create interest, and start the buying impulse. A few words close the sale. Try it and see. Get these profit earners on your counters quickly. Order an assortment from your jobber.

**VAN CLEEF BROS., Mfrs.**  
Established 1910  
Woodlawn Ave., 77th to 78th Sts.,  
CHICAGO



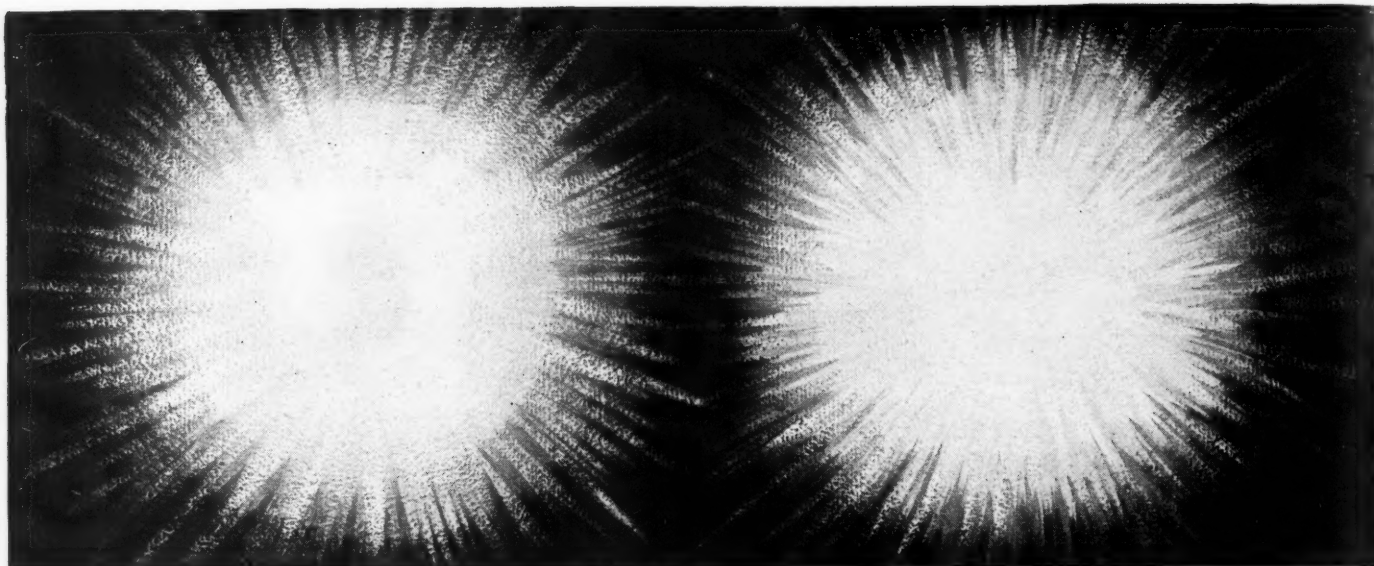
Dutch Brand is the only nationally advertised Friction Tape. Your customers are among the millions who are being urged to look for Dutch Brand cartons and buy more Tape and Motor Aids.

# DUTCH BRAND



# FRICITION TAPE





## The Real Solution of the Nation's Headlight Mess

**I**N August 23 Saturday Evening Post will appear an advertisement every accessory dealer should read. "The Real Solution of the Nation's Headlight Mess" is its caption.

Today, almost every state in the Union has a headlight law differing from every other state. In some, dimming is compulsory, while in others it is distinctly unlawful. Many require delicate headlight adjustments.

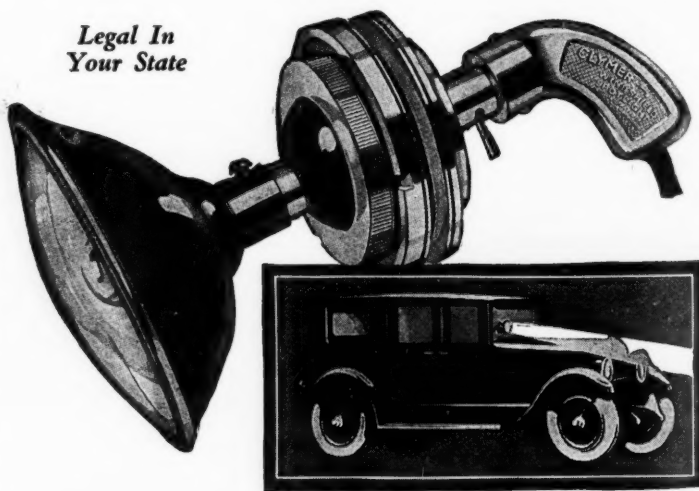
What is the sum total of this condition? **BLINDNESS** and **PERIL!** Whether lights are dimmed or kept on bright, the driver is in constant danger when meeting other cars.

The sensible, safe solution is the Clymer Safety Light—the movable, auxiliary light which fits through the windshield glass. The Clymer, with its movable beam of daylight brilliance, gives a safe, dependable, guiding light which *does not shine in the other fellow's eyes.*

Never before has the agitation for safe, sane motoring been so keen as today. The full page Clymer ad in August 23 Post, carries an outstanding message on

this vital subject. Are you prepared to profit from it through displaying the Clymer Safety Light in your store and window? Order from your jobber today.

*Legal In  
Your State*



Clymer Manufacturing Company, Rockford, Illinois

THROUGH-THE-WINDSHIELD  
**Clymer** Safety  
**LIGHT**  
Patented May 15, 1923 and July 15, 1924;  
 other patents pending.

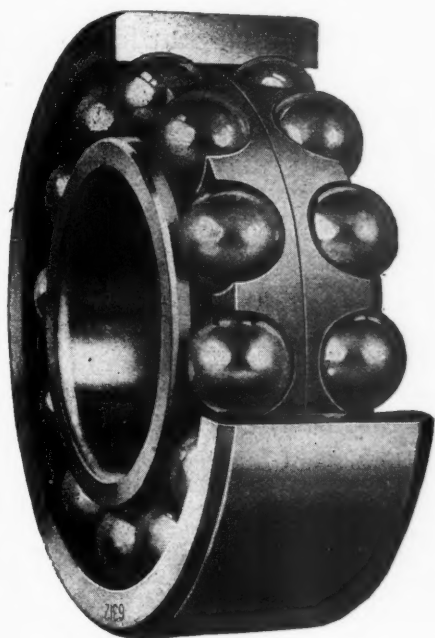
THROUGH THE WINDSHIELD WHERE THE SPOTLIGHT BELONGS

# FAFNIR

You sell your passenger cars and trucks on their merit. No single part can be of mediocre grade and not seriously affect the assembled car. This is particularly true of the bearings, all of which carry moving parts.

First, you want the most efficient, most nearly frictionless type of bearing. That is, the **ball bearing**.

Secondly, you require ball bearings of the highest grade, and you know there is nothing better than a **Fafnir**.



**Fafnir Ball Bearings** are made in all standard types and sizes, and all are manufactured with the utmost accuracy and finish from thoroughly heat treated chrome alloy steel. When you buy **Fafnir**, you are safe.

## THE FAFNIR BEARING CO.

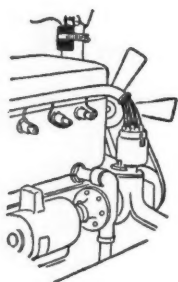
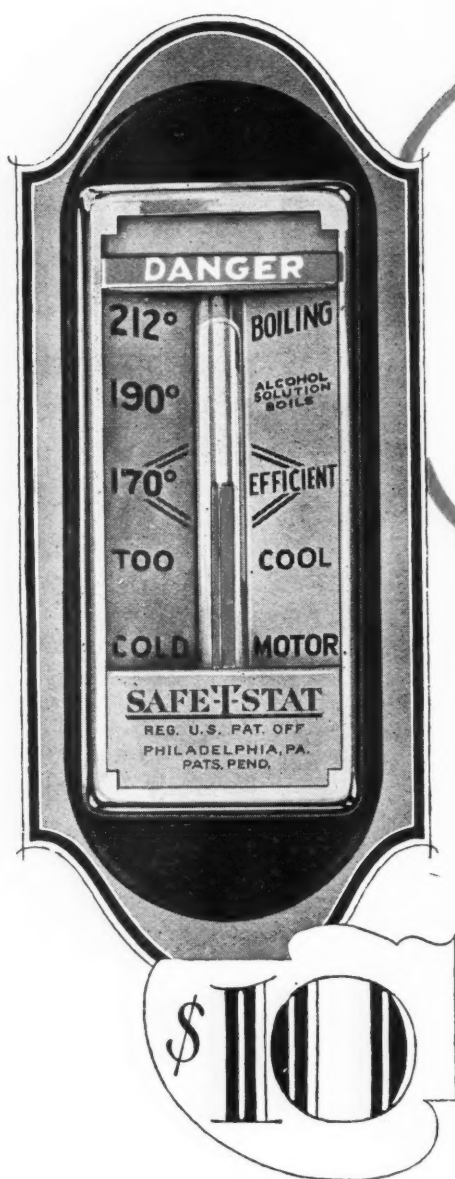
New Britain, Conn.

CHICAGO, ILL.  
2131 South Michigan Ave.  
DETROIT, MICH.  
120 Madison Ave., Rm. 511

CLEVELAND, OHIO  
1016-1017 Swetland Bldg.  
NEW YORK, N. Y.  
5 Columbus Circle

NEWARK, N. J.  
271 Central Ave.  
PHILADELPHIA, PA.  
1427 Fairmount Ave.





## *Theft Proof Drop Proof One Model Fits All Cars Accurate under All Conditions*

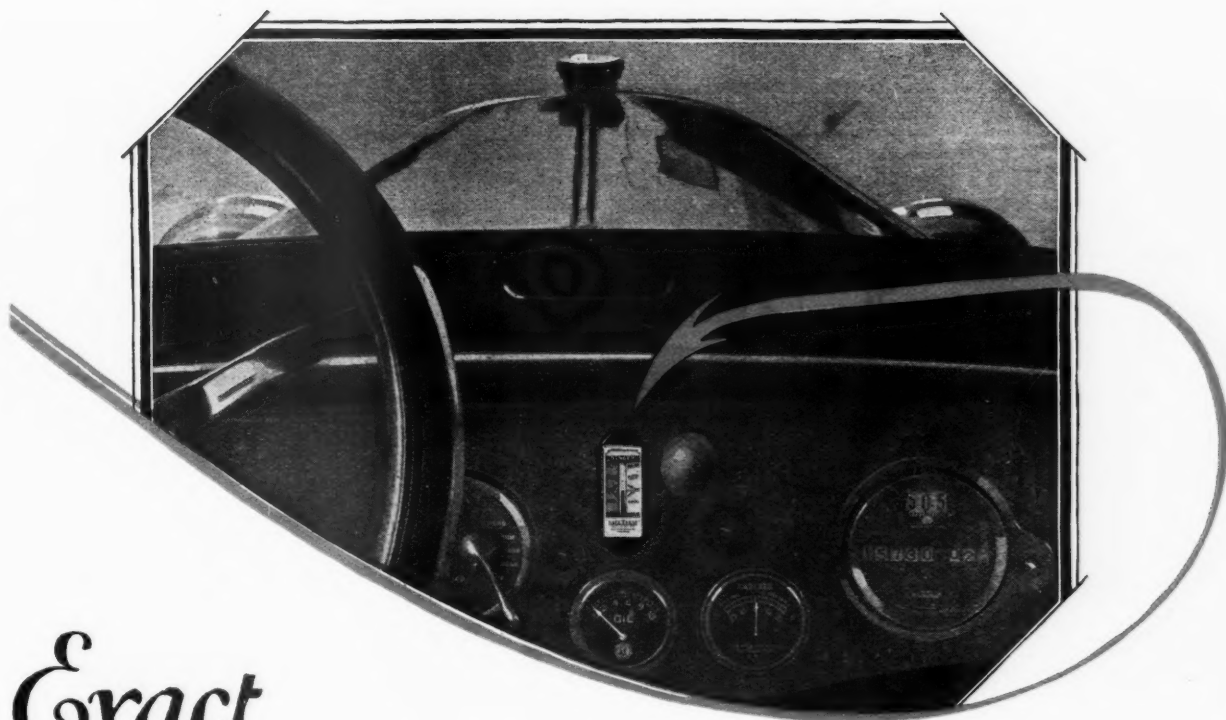
The thousands of motorists who want an instrument that is both dependable and visible at all times will find in SAFE-T-STAT the ideal temperature indicator. It registers true engine temperature independently of weather or radiator conditions and indicates the most efficient running heat for the engine. Its graduated dial shows plainly the exact condition of the engine and warns in time to prevent damage resulting from low water, insufficient oil or an idle fan.

Dealers have the big advantage of only one model to sell, one size to stock and one price.

Write for further details and profitable sales plan.

*Look for Safe-T-Stat national advertising in such journals  
as the American Magazine, Collier's, The  
Literary Digest and Liberty*

# SAFE-T-STAT



# Exact Engine Temperature Visible Night and Day

With SAFE-T-STAT mounted on your instrument board, there's no need to *guess* at the condition of your motor. SAFE-T-STAT registers the exact temperature of your engine and warns in time to prevent damage from over-heating.

Night or day, rain or shine, this precision instrument is directly under the motorist's eye to inform, warn and protect, regardless of weather or radiator condition. It is the one device which tells true *motor* temperature at all times.

SAFE-T-STAT consists of a graduated thermometer *mounted on the instrument board* and actuated by a unique thermostat. It is installed permanently in a few minutes, and operates indefinitely without adjustment, repair or expense.

**Endorsed by Barney Oldfield**

The famous veteran of the race track was one of the first to equip his cars with the SAFE-T-STAT and highly recommends its perfect performance after an exhaustive test on a transcontinental run.

**The SAFE-T-STAT Co., Inc.**

FACTORY  
57th and Westminister Ave.

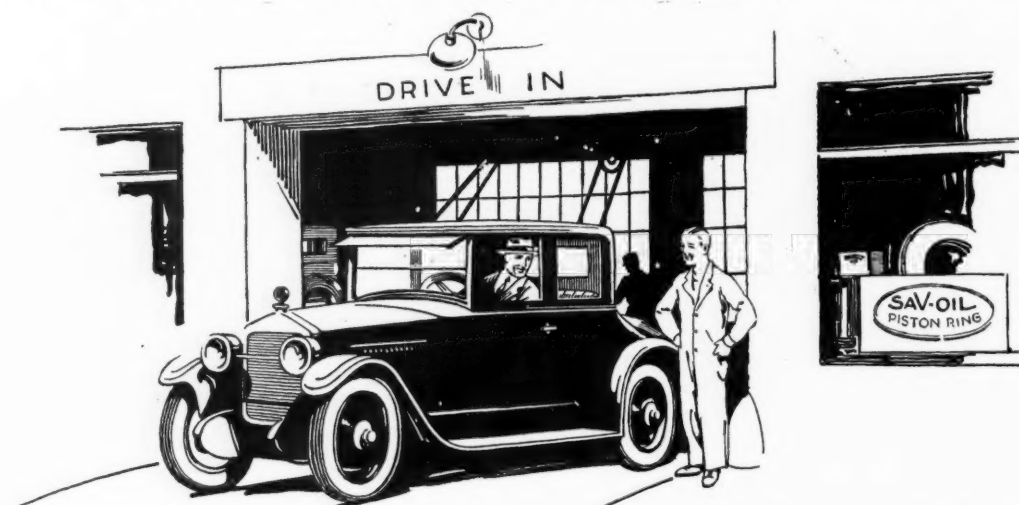
PHILADELPHIA

GENERAL OFFICES  
Drexel Building

# SAFE-T-STAT



SELL THE ONLY OIL RING WITH A MILEAGE GUARANTEE



*Insure a satisfactory overhaul job  
with SAV-OIL Rings*



Every satisfied customer who drives out of your shop is worth dollars in your pocket. He is your biggest asset because he means repeat business and he sends his friends for new business.

That's why wise garagemen, regrinders and service station men **EVERYWHERE** are insuring a satisfactory re-conditioning job by installing SAV-OIL rings.

You can guarantee your customers 1000 miles to the gallon of oil with SAV-OIL rings. They absolutely eliminate oil pumping and the resulting motor ills.

Install only *one* per piston—that's why you can handle a large number of cars with only a small investment in stock. Send **TODAY** to our nearest distributor for a trial order.

*Territories Open for Distributors*

Sav-Oil Piston Ring Co.  
2056 Jackson Blvd.  
Chicago, Ill.

Sav-Oil Ring Mfg. Co.  
550 Golden Gate Ave.  
San Francisco, Calif.

H. C. Alexander  
612 W. Seventh St.  
Little Rock, Ark.

Mountjoy Bros.  
733 W. Colfax  
Denver, Colo.

H. W. Blevins  
1532 Grand Ave.  
Kansas City, Mo.

C. H. Mountjoy & Co.  
211 Third Street  
San Antonio, Texas

**The Sav-Oil Ring Mfg. Co.**

1037 So. Figueroa St.

Los Angeles



# WATSON STABILATORS

former price  
\$64.<sup>00</sup>

now

**\$48**

for all cars  
except FORDS

**Sensational price revision—  
result of increased volume**

Packard, Franklin, Marmon, Duesenberg—on the subject of easy riding, there stands no higher authority than any one of these builders. Collectively, their unanimous verdict in favor of Watson Stabilators is paramount guidance for any man wanting the utmost riding quality.

At former prices, Stabilators were an outstanding value. At the new prices, the value is sensational. No motorist need longer put up with old-fashioned, jack-in-the-box motoring. All men can now have this last word in motoring ease and luxury—and safety.

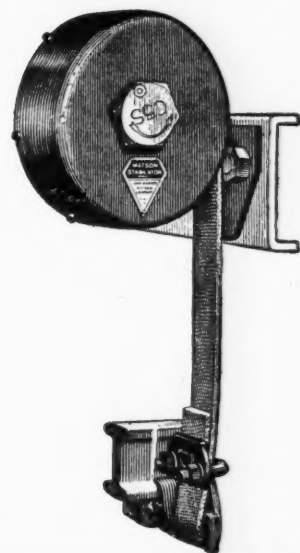
Begin today to enjoy Stabilated motoring. See your Car Dealer or Garage Man.

In no detail or particular has the quality, design or construction of Stabilators been altered.

Economies now made possible by vast production are passed on in whole to the consumer.

Stabilation is the acknowledged last word in Easy Riding.

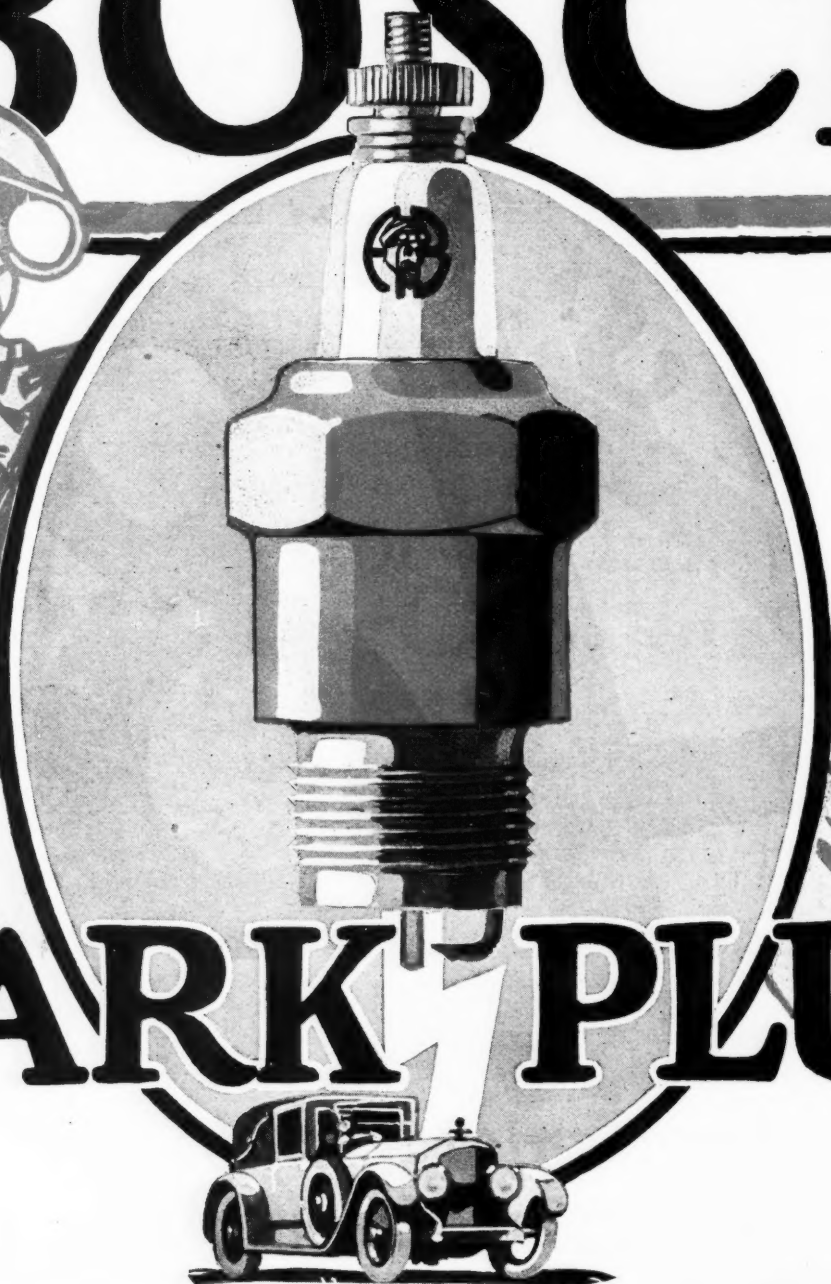
**FORDS**  
**\$25.<sup>00</sup>**  
former price \$32.<sup>00</sup>



**JOHN WARREN WATSON COMPANY, Twenty-fourth and Locust Streets, PHILADELPHIA**



# The BOSCH



## SPARK PLUG



**BOSCH  
IGNITION  
SYSTEM  
FOR  
FORDS  
TYPE  
600**

Insures quick, easy starts, clean plugs, added power. Has automatic spark advance—is water-proof. Prevents all ignition troubles. Price, \$12.75.



**BOSCH  
ELECTRIC  
WINDSHIELD  
WIPER**

An absolutely reliable automatic cleaner that is operated electrically. Not affected by engine speeds. Puts no burden on the battery. Price \$9.50.



**BOSCH  
SHOCK  
ABSORBER**

*"Smooths the Road"*

A new, scientific device that controls car springs perfectly and provides true riding comfort at low cost. Prices per pair: For Fords \$10.00. Medium Cars \$15.00. Heavy Cars \$20.00.

# Long Line

## Make this test yourself—



Pick out the heaviest duty engine in your neighborhood—truck, tractor or stationary engine — whose high compression makes ordinary plugs leak and misfire.

Put a set of RED Bosch Spark Plugs in it and see for yourself how absolutely gas tight and dependable they are!

Then pick out an old unbalanced motor that vibrates, overheats, and puts other plugs right out of commission. Put your RED Bosch Plugs in it and see how *they* stand up!

You'll be enthusiastic about RED Bosch Plugs after these tests. You'll want to sell them to all your good customers. You'll just *know* they are the most dependable plugs—the ones that give the greatest satisfaction and hold the good "repeat" customers.

The Bosch RED Plug is not just another plug — it's different — it's better—it's a real business builder.

Wire for a test carton of ten at special quantity discounts — and make your tests immediately.

### PRICES

Ford Size.....	75c
In Canada .....	\$1.00
Other Sizes.....	\$1.00
In Canada .....	\$1.25

## AMERICAN BOSCH MAGNETO CORPORATION

Main Office and Works: Springfield, Mass.

### BRANCHES

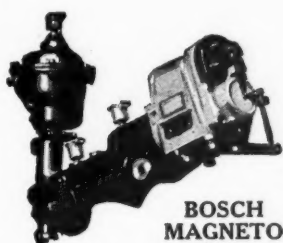
New York

Chicago

Detroit

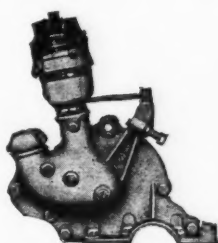
San Francisco

DEALERS: Big advantages open to live dealers who become Bosch Sales Agents and sell the Bosch Long Line of Auto Necessities



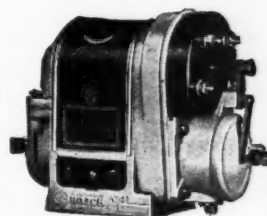
**BOSCH  
MAGNETO  
FOR  
FORDSONS**

Provides Bosch High Tension Magneto Ignition for Fordsons. Eliminates coils and timer. Prevents all ignition troubles. Installed with, or without, the Bosch Throttle Governor. Prices on request.



**BOSCH DE LUXE  
IGNITION SYSTEM  
FOR FORDS  
TYPE 513**

Includes the Bosch Coil, and Bosch Compensating Governor, which automatically advances and retards the spark to exactly meet the Ford engine's characteristics. Wonderfully efficient. Price \$25.00



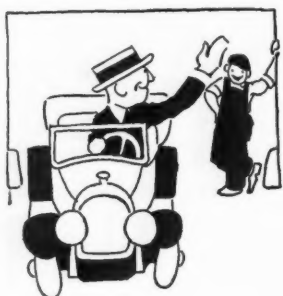
**BOSCH  
HIGH TENSION  
MAGNETO**

The world's most dependable ignition system—over four million in use today—in demand everywhere for use on cars, trucks, tractors, motorcycles, motor boats and stationary engines. Prices on request.



# *Tell 'em—* **why it pays to** **Re-condition motors** *then sell 'em*

The car owner doesn't live who wants a sluggish motor. His car may be one or five years old, but he wants power, pep and speed. Tell him about motor re-conditioning—how it will make his motor as good as new. He'll be interested.



Tell him how he's losing money and pleasure by not having his motor re-conditioned. Tell him that the job won't cost a fortune and that he'll get it all back in a few weeks' running. Tell him about McQuay-Norris parts. He'll be sold.



With the new low prices on McQuay-Norris Leak-Proof and Superoyl Rings you've got him half sold before you start. There's real profit in McQuay-Norris parts. Collect 'em.

All car owners want what you've got, but you have to tell 'em to sell 'em.



## **McQUAY-NORRIS**

### **PISTON RINGS - PISTONS - PINS - BEARINGS**

*Remember*

*The best profits are in the best parts. Poor replacement parts can ruin a good mechanical job.*

McQuay-Norris Manufacturing Co. General Offices: St. Louis, U. S. A. Factories: St. Louis, Indianapolis, Connersville, Ind.; Toronto, Canada



The Oakland—True  
Blue in every detail.

# HARRISON RADIATORS

HARRISON RADIATOR CORPORATION, LOCKPORT, NEW YORK



THE MARK OF RADIATOR SATISFACTION



# The Famous

*Overland's 23 Big Car Dealers the Upper Hand in It's What You Are Able to Tell*

Give the public a bigger money's worth and the public will give you more profits. It always works out that way. That is the way it is working out with Overland and all Willys-Overland merchants. And here are the reasons, plain as daylight:

- 1 **Bigger Power.** The bigger Overland engine is more than a match for any hill.
- 2 **Triplex Springs (Patented).** Overland is the only car in the world with Triplex Springs. This ingenuity of engineering gives Overland a spring-base 30 inches longer than any other car at or near the price.
- 3 **Bigger Brake Area.** Overland brakes provide 25% more braking surface than any car near the price.
- 4 **Rear Axle Strength.** No other car at or near the price matches the sturdy Overland rear axle construction, with so many Timken and New Departure bearings. The axle shaft is Mo-lybden-um steel—the toughest steel known.
- 5 **Rugged Front Axle.** Overland's front axle is *heat treated*—with an elastic limit of 75,000 to 90,000 pounds!
- 6 **Disc Type Clutch.** Superior smoothness and great dependability. It runs in a bath of oil, completely encased and protected from dirt and dust.
- 7 **Enamel On Steel.** The Overland touring car is the only car at or near the price with an all-steel body finished in hard-baked enamel—*enduringly* beautiful.
- 8 **Stronger Brake Rods.** Overland brake rods are solid and dependable, following the highest engineering practice.
- 9 **A Different Differential.** One-piece construction. No bolts to work loose! Extra-large pinions. Extra large ring gear.
- 10 **Longer Gear Lever.** One of many Overland driving comforts is the extra-long Overland gear lever.
- 11 **A Rigid Windshield.** Overland windshield stanchions go clear through to the frame of the car. A *built-in* windshield instead of a clamped-on windshield!
- 12 **Bigger Propeller Shaft.** The greater strength of Overland is nowhere more in evidence than in the unusual size of the Overland propeller shaft.
- 13 **Airplane Fan.** The Overland fan closely resembles an airplane propeller carefully engineered for shape, balance and cooling efficiency.

# WILLYS-

# 23 Points—

*Quality Advantages Give  
Sales Based on Facts—  
the Public That Sells the Cars*

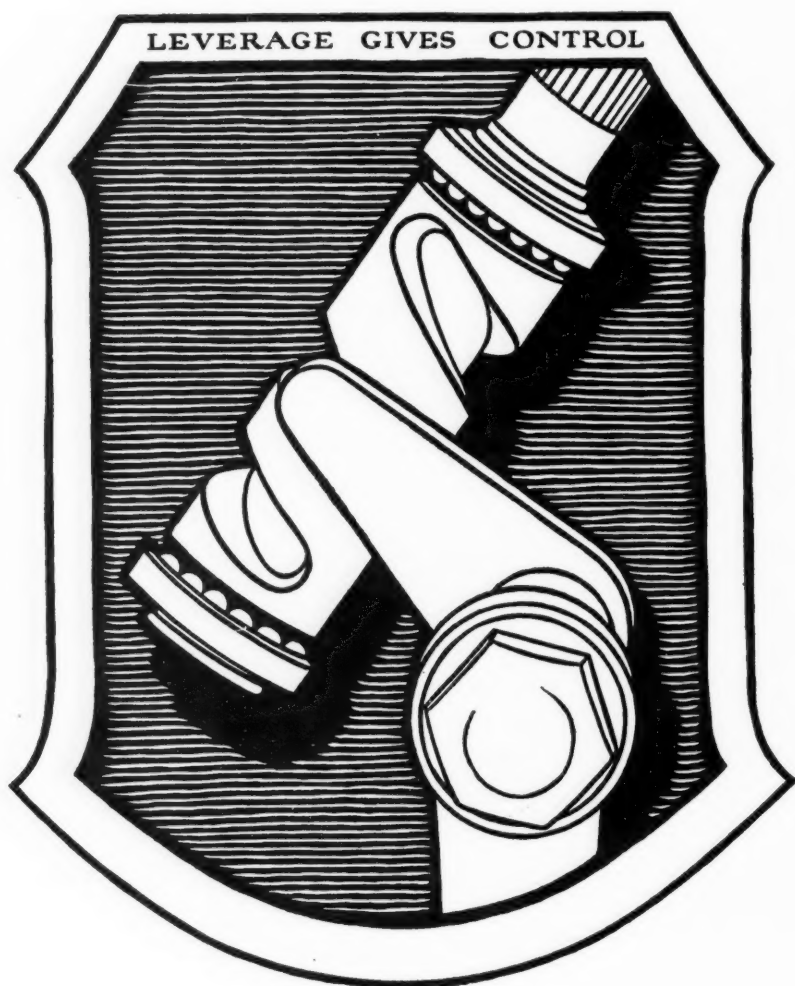
- |    |   |    |  |
|----|---|----|--|
| 14 | <b>Ease of Entrance.</b> Overland makes it easy to step from the left-running board into the driver's seat. Unobstructed ease of entrance and exit on both sides. | 19 | <b>Legal Headlights.</b> Overland's smart drum headlights are equipped with lenses that are legal wherever you may drive.  |
| 15 | <b>Balanced Crankshaft.</b> The Overland crankshaft is balanced while standing and running at high speeds, thus eliminating objectionable vibration.              | 20 | <b>Greater Rear Vision.</b> Overland's rear window gives you 168 square inches of clear vision—almost <i>twice as much</i> as in the average light touring car.  |
| 16 | <b>Greater Leg Room.</b> Overland gives drivers fully four inches more leg room!  | 21 | <b>Simpler Lubrication.</b> Overland is the easiest of all cars in its class to lubricate. Therefore Overland is easily kept in fine condition.  |
| 17 | <b>Better Upholstery.</b> Deeper cushions, with extra padding around the edges. Coil springs held firmly in place by metal strips.                                | 22 | <b>Complete Equipment.</b> Overland comes fully prepared for a long career of good service. No extras to buy.  |
| 18 | <b>Substantial Fenders.</b> Feel the thickness of Overland fenders. Here are fenders of solid strength, fastened to the car in a way that keeps them solid!       | 23 | <b>Economy.</b> Great economy in first cost, in upkeep, in gasoline and oil. Overland is built for long, long service, and its big, powerful engine gives countless owners 20 miles or better to the gallon of gasoline. |

So much for the car itself. Of equal advantage to the dealer are the fair-handed Willys-Overland policies written right into the franchise—by all odds the most liberal and helpful working agreement ever offered. Some very desirable opportunities exist in the Willys-Overland dealer organization. Send today for the book of "Evidence".

Willys-Overland, Inc., Toledo, Ohio - Willys-Overland Sales Co. Ltd., Toronto, Canada

# OVERLAND






## Three Certain Results

**A**LMOST effortless steering on the straight-aways. Prompt acceleration on right or left turns. Road shock practically eliminated. No wonder those who value ease, comfort and surer control are turning to the Ross Cam and Lever Steering Gear. *Write for the facts.*

ROSS GEAR AND TOOL COMPANY, 400 Heath Street, Lafayette, Indiana

**ROSS**  
**CAM and LEVER**  **STEERING GEARS**  
**EASIER STEERING LESS ROAD SHOCK**

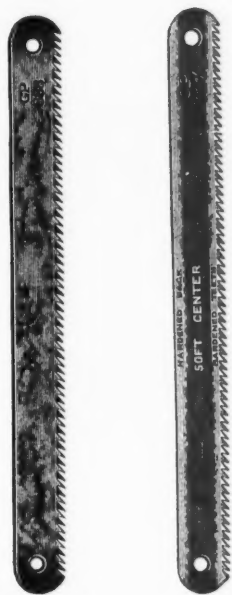


Adjustable  
Hack Saw Frame  
with pistol grip

No.  
**247**

Price \$3.50

## Pistol Grip Hack Saw



Hack Saw  
Blades  
All Hard

No.  
**888**

Flexible  
Hack Saw  
Blades with  
soft center

No.  
**777**

**T**HE pistol grip handle fits snugly in the hand and is so hung that the wrist comes almost directly behind the blade, making sawing easy and blade breakage less frequent.

Made of first-grade round-edge steel. Frame is adjustable from 8 to 12 inches. Very rigid, being made of  $\frac{1}{4} \times \frac{3}{4}$  inch steel with extra heavy back. Fully polished and nickel plated.

Black composition handle is molded in a single piece. Depth of throat  $3\frac{1}{8}$  inches. One blade furnished with each frame.

As to blades the Goodell-Pratt line offers a wide assortment of all hard as well as flexible blades.

The all hard blades are made of high-grade, hot-rolled sheet steel, hardened and tempered to just the right degree.

The flexible hack saw blades are made of the same grade of sheet steel, with hardened teeth and back, but soft centers to withstand severe twists and side strains.

### *Other Goodell-Pratt Tools*

No matter what the nature of your work, you will find in the Goodell-Pratt Catalogue No. 15, many tools that should be a part of your equipment. The catalog is free to you. Send for it.

GOODELL-PRATT COMPANY, Greenfield, Mass., U. S. A.

*Toolsmiths*

MAKERS OF MR. PUNCH

# GOODELL-PRATT

## 1500 GOOD TOOLS



# AC SPARK PLUGS

A safe investment.

The best known, easiest selling and most profitable spark plugs.

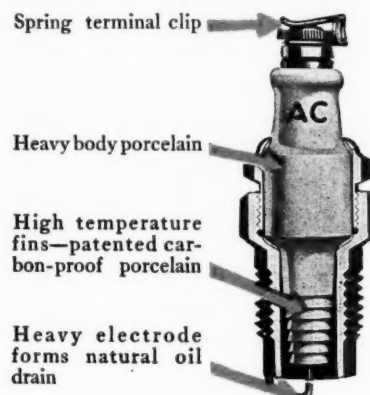
Backed up by the factory equipment business of more than 200 manufacturers.

Nationally advertised through magazines, newspapers, painted boards, store signs, window displays and direct advertising, which creates a big demand for them.

## AC 1075 SPARK PLUGS

*A good plug for  
Fords*

The AC 1075 Spark Plug for Fords  
is a big seller and money maker.



## AC SPEEDOMETERS



The quality of AC Speedometers is proven by the fact that they are equipment on BUICK, CHEVROLET, CHRYSLER, GRAY, HAYNES, LEXINGTON, MAXWELL, OAKLAND and OLDSMOBILE.

### THE MODEL FOR FORDS

Complete with all attachments. The new AC Direct Drive has done away with the swivel joint. Easily sold because of their high quality and national advertising.

SELL AC PRODUCTS—THEIR QUALITY AND  
POPULARITY ASSURES DEMAND AND PROFIT

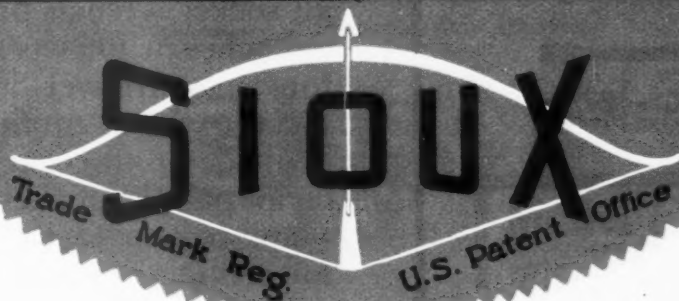
AC-SPHINX  
Birmingham  
ENGLAND

AC Spark Plug Company, FLINT, Michigan

Makers of AC Spark Plugs—AC Speedometers

U. S. Pat. No. 1,135,727, April 13, 1915; U. S. Pat. No. 1,216,139, Feb. 13, 1917. Other Patents Pending

AC-OLEO  
Levallois-Perret  
FRANCE



## For Practically All Reseating Jobs

this set contains the proper size reamer and pilot stem. Comes complete in a box with each stem place and each reamer post marked for each size. Set includes 10 Sioux Valve Seat Reamers and 4 Pilot stems in the following sizes:

1½ in. . 45°	1⅝ in. . 30°	1¾ in. . 45°	2 in. . 45°	2¼ in. . 45°
1⅝ in. . 45°	1¾ in. . 30°	1⅞ in. . 45°	2⅛ in. . 45°	2½ in. . 45°

Pilot Stems ⅝-in., ¾-in., ⅞-in., 1½-in.

*Increase shop production and profits by reaming pitted valve seats before grinding.*

## VALVE SEAT REAMER SET

Ask Your Jobber About It

ALBERTSON & CO.

SIoux CITY, IOWA



# Another advantage of selling Walden-Worcester Socket Wrenches



## TEE HANDLE TYPES of WALDEN-WORCESTER SOCKET WRENCHES



No lost sales by not being able to meet the demands for a single wrench. A Walden-Worcester stock is flexible. You can supply the demands for one wrench or make up various combinations of wrenches for all popular makes of cars and trucks.

*The third of a series of advertisements giving reasons why it pays to be a Walden-Worcester Dealer.*

A Walden-Worcester Dealer has a flexible stock. He can meet the demands of all socket wrench prospects, for single wrenches or for sets of wrenches, therefore his turnover is quicker and his socket wrench profits climb. Sets can be made up to cover the bolts and nuts on all popular makes of cars and trucks—and remember, each wrench in the set for servicing a particular make of car will take care of the standard bolts and nuts on that car or truck! Sell the socket wrenches that you can sell singly or in sets and get all the socket wrench business that comes your way.

Just around the corner, everywhere, there's a Walden-Worcester Jobber—buy from him.



**WALDEN-WORCESTER**  
INCORPORATED  
GENERAL OFFICES AND FACTORY  
WORCESTER, MASS.

*The trade knows.*

# WALDEN-WORCESTER

*The original and largest manufacturers of Wire Handle Socket Wrenches in the World*



**Model C-17**Shipping weight, 35 lbs.  
price \$25.00

## You Can't Afford to be Without These Time-Savers

**C17** is a combination Babbitt Furnace and Torch which melts the babbitt economically to the proper temperature and holds it there. At the same time the torch melts the old bearing out of the cylinder block quickly, leaving a nice clean dry seat for the new one.

**C18** Furnace is exactly like the C-17 except it has no torch attachment and is used to melt the babbitt only where the mechanic prefers to chisel the old bearing out of the block. Price \$15.00; Weight 30 pounds.

### Model H-40

Shipping weight, 25 lbs.

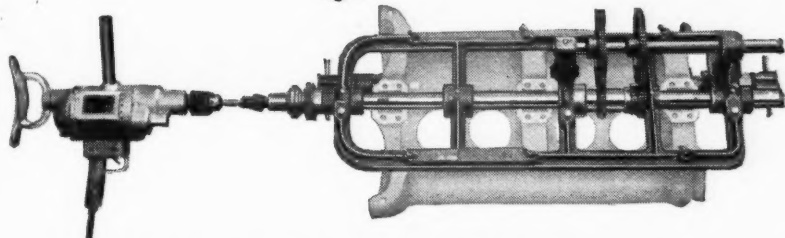
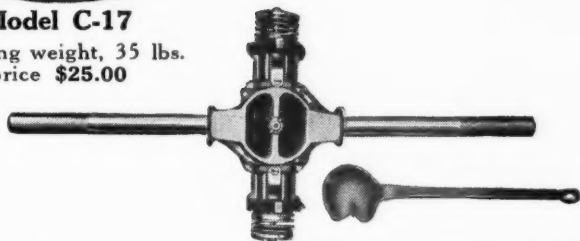
Price, \$42.50

A simple tool for molding  
Fordson Main Bearings.

### Model H-4

Shipping weight, 20 lbs.

Price, \$37.50

A simple, practical tool for  
babbitting the bearings in a  
Model T Ford cylinder  
block.

**Model C-2** Shipping weight, 170 pounds.  
Price \$130.00. A machine  
for boring all three main bearings in a Fordson cyl-  
inder block in one continuous operation in straight  
alignment.

**Model C-1** Shipping weight, 110 pounds.  
Price \$105.00. A machine  
for boring all three main bearings in a Ford cylin-  
der block in one continuous operation in straight  
alignment.

With the above tools you can finish a set of bearings in a Fordson cylinder block, ready for the crankshaft in less than 60 minutes at a maximum expense of \$2.50 for time and material.

You can finish a set of bearings in a Ford cylinder block ready for the crankshaft in less than 30 minutes at a maximum expense of \$1.25 for time and material.

With a little practice you can do it in half that time. To recondition a set of old bearings takes a mechanic from 3 to 8 hours and the bearings will never be exactly right because they have been impregnated with grit and the change in position of the crankshaft caused by this reconditioning is usually sufficient to make noisy timing gears. With our tools you can do a good job for \$1.25 to \$2.50. The old-fashioned way of doing it makes a doubtful job at an expense of \$6.00 to \$18.00.

The reason you do not sell more Fordsons is because too many of them are standing in the fence corner for the want of bearings. When you show your farmer friends that you can put a new set of bearings in a Fordson tractor once a year for less money than it costs to put one set of shoes on a good team of horses, your tractor business will increase. Your farmer friend already knows that a tractor eats less gasoline and oil than a horse does hay, to say nothing of oats and corn.

Order a complete outfit from your jobber today.

Made by  
Hempy-  
Cooper  
Mfg. Co.

# HEMPY-COOPER

## Rebabbitting Appliances

414  
Archibald  
Ave.,  
Kansas City  
Mo.

**ZENITH**



**LEGEND**

- Service Station
- Distributor
- ✱ Factory or Branch

**RESUME**  
 June 20<sup>th</sup> 1924  
 6 Factories or Branches  
 80 Distributors  
 939 Service Stations

## Zenith Nation-Wide Service



There is a Zenith for every car, truck, bus, tractor, air-plane, boat or industrial engine

The Zenith-equipped car—wherever it goes, here or abroad—never outdistances Zenith service. Only accident or years of use, brings the need of service to the *fixed adjustment* Zenith, but it is a source of satisfaction to the car owner, and an added sales value for the dealer, that if needed, it is at hand.

This organization of branches, distributors, dealers and stations—numbering nearly a thousand—co-operates with garages and car dealers to increase owner satisfaction.

## ZENITH-DETROIT CORPORATION

Manufacturer of

### ZENITH CARBURETORS

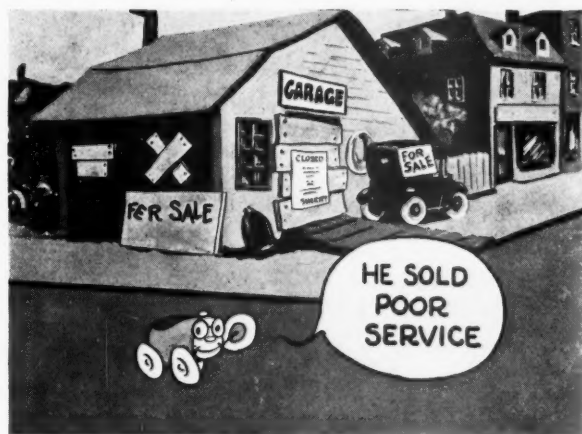
DETROIT
MICHIGAN

Branches:

NEW YORK
CLEVELAND
CHICAGO

Service Stations in over 900 cities

# **Fix 'er up**



**One Picture  
You Should Not  
Fail to See**

## **Profitable Maintenance (An Animated Movie)**

Produced and distributed by the Automotive Equipment Association. Now being shown in all parts of the United States by A. E. A. members.

One of the greatest business opportunities of the day is in the servicing of automotive vehicles and you are going to conduct a more prosperous business after you have seen this film.

It shows clearly the advantage of developing a "Profitable Maintenance" business by the sale of honest workmanship and dependable parts.

This film provides the background from which you can effectively preach the gospel of "Fix 'er Up" to your car owning trade.

The Packard Electric Company

The Eaton Axle & Spring Company

The Conneaut Packing Company

Brunner Manufacturing Company

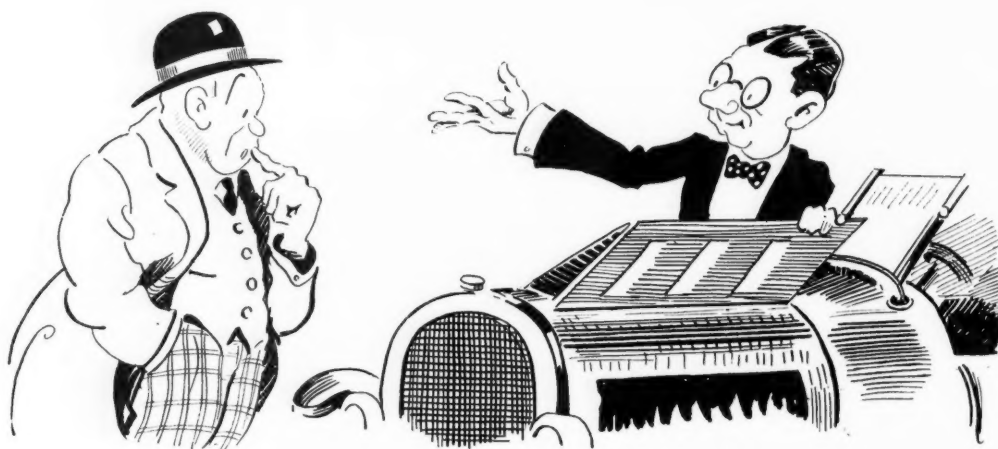
The Cincinnati Victor Company

**" To use -to sell-to trade "**





# Fix 'er up



Why do so many prospective buyers of used cars lose heart when they look beneath the hood—men whom you feel sure know nothing about motors?

We old timers entirely lose sight of the fact that the wiring on a car appears to the average man as a fearsome thing—something which he wants to avoid because he knows nothing about it—especially if that wiring looks dirty, greasy, twisted or tangled like it had been a source of previous trouble.

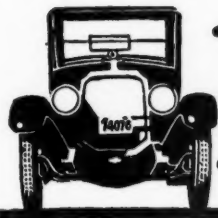
Put in a neat, clean job of Packard Cable on every Used Car you have. You will then FIND that more “lookers” will become buyers. Men who DO know, will be impressed by the use of the best-known cable and those who do NOT know will be filled with confidence by the neat and business-like appearance of the job.

Re-conditioning of the 15,000,000 cars now in use offers one of the greatest opportunities in the country today. Urge your customers to re-wire with Packard Cable and get full value out of their car investments. They will use their cars more and become BETTER customers.

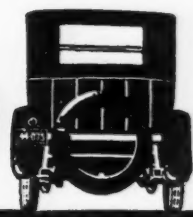
We issue free to dealers and repairmen, a Wiring Chart which specifies exactly what type of cable to use on every car. Send for one today—it will simplify your wiring work.

*The Packard Electric Company*  
WARREN, OHIO

**“To use -to sell-to trade”**



# Fix 'er up



## Overhaul the Springs

WHEN selling your customers on having their cars reconditioned, be sure to mention the importance of putting the *springs* in shape. This may mean simply cleaning and graphiting, with a few new bolts or clips, or it may mean a complete new spring in some cases.

Whatever it is, it will improve the riding qualities of the car, and possibly prevent a serious breakage later.

This new catalog of Perfection Springs for replacement is your complete guide-book for good springs made to each car manufacturer's specifications.

*Handled by Good Jobbers Everywhere*

THE EATON AXLE & SPRING COMPANY  
CLEVELAND

NEW YORK  
616 W. 56th St.

BOSTON  
162 Brookline Ave.

PHILADELPHIA  
223 N. 22nd St.

CHICAGO  
2933 Calumet Ave.

CLEVELAND  
6515 Carnegie Ave.



# PERFECTION



## SPRINGS



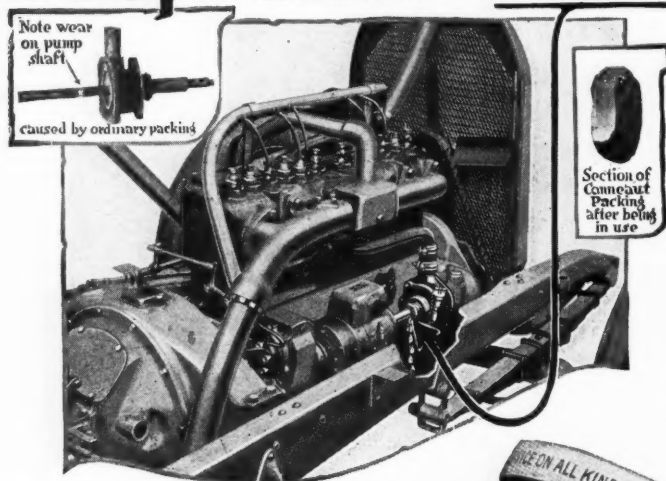
AN EATON PRODUCT

**"To use -to sell-to trade"**

# **Fix 'er up**

**"Reconditioned" also means permanently fixing that leaky water pump!**

**Stop That Leak with "Conneaut"**



Economical to use. Lasting in results. Wonderful time saver. Every Garageman should have a can handy for use.

Use it once—you'll never be without it.



**"CONNEAUT"** Plastic Metallic Packing before it is applied is soft enough to be moulded in the fingers like putty. This allows you to pack it snugly into the stuffing box, fill up every possible leakage point and, do the job in a few minutes.

When Conneaut Packing is formed to place, it becomes a smooth, practically frictionless, metal bearing which can be adjusted after wear by tightening the packing nut while the shaft is in motion.

The advantages of "Conneaut" Plastic Metallic Packing are immediately apparent. It is an invaluable aid in the garage and service station. Remember the size is in stock to repair any size water pump, and a permanent repair can be made even after the shaft and bushings have become worn.

It has a wide market wherever steam pistons, compressors, pumps and machinery of every kind are used.

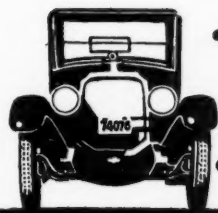
A few cents worth of "Conneaut" will make a 100% job. It will make a permanent, leak-proof job in a few minutes.

We furnish Jobbers with salesmen's samples for "demonstration on the spot" purposes. There is a market, Jobbers, in your territory for "Conneaut" Packing. Consider the sales possibilities of a packing that can be manipulated as "Conneaut" can and the results it produces.

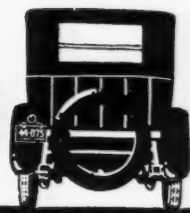
**The Conneaut Packing Company**  
Conneaut, Ohio

**"CONNEAUT"**  
*Plastic Metallic Pump Packing*  
**"To use -to sell-to trade"**





# Fix 'er up



## With Compressed Air!



### Air Cleaning

Every day you will find new uses for your air compressor.

Chief among the uses that have been proved out are: Blowing carbon after scraping (illustrated). Clearing fuel and oil lines, Testing radiators, tanks and hollow shafts, Cleaning generators, distributors, etc. Drying wire wheels and chassis parts. Cleaning stock bins, tool racks and display cases. Cleaning upholstery. Drying gasoline tanks before soldering. Drying assembled bearings after kerosene or acid bath.

For air cleaning a pressure of 40 to 60 lbs. is adequate. The nozzle orifice should not be greater than

1/32 in. This has been proved by repeated experiment under all conditions on all kinds of air blast work.



### Air Spraying

The air spray can be utilized in many jobs — you

will discover new uses each day which can be a source of saving or profit.

Cleaning dust, bugs, twigs, and road oil from radiator. Requires ten minutes and 1 gallon of gasoline. Usual

flat rate charge is \$1.25 for small motors and \$1.50 to \$2.00 for large motors.



### Paint Spraying

Second hand cars can be brightened, wheels painted,

radiators recoated and tires enamelled all to good advantage with a paint gun connected to your Brunner Air Line.

Where painting is done intermittently a 1/2 H. P. or 3/4 H. P. compressor will serve for one paint gun. Where steady painting, cleaning and spraying is practiced, Brunner Models 949, 969 or 965 are most suited.

If additional air tools are in use, Model 967 is advised.

**FIXING** up the old car invariably means giving it a thorough cleaning and almost always there are parts that need repainting.

Here are two jobs, cleaning and painting, that can be handled with compressed air better and more quickly and therefore more economically and profitably than in any other way.

Thus a Brunner Air Compressor suitably chosen for your needs will serve two important purposes. It will make possible a free-air service of highest possible efficiency and it will also put at your disposal a steady unfailing flow of compressed air for a score of shop jobs—in the doing of which you ring up real profits.

The Brunner Air Compressor is known the world over as a quality equipment capable of giving trouble-free performance through years of hard service.

Ask for the Brunner Book "Air Profits" which describes many profit making uses of compressed air and catalogues the Brunner Line of Compressors and attachments.

**BRUNNER MANUFACTURING CO.**

Utica, New York

*Oldest and largest manufacturers of Garage Air Compressors in the World*



**Brunner Model 939**

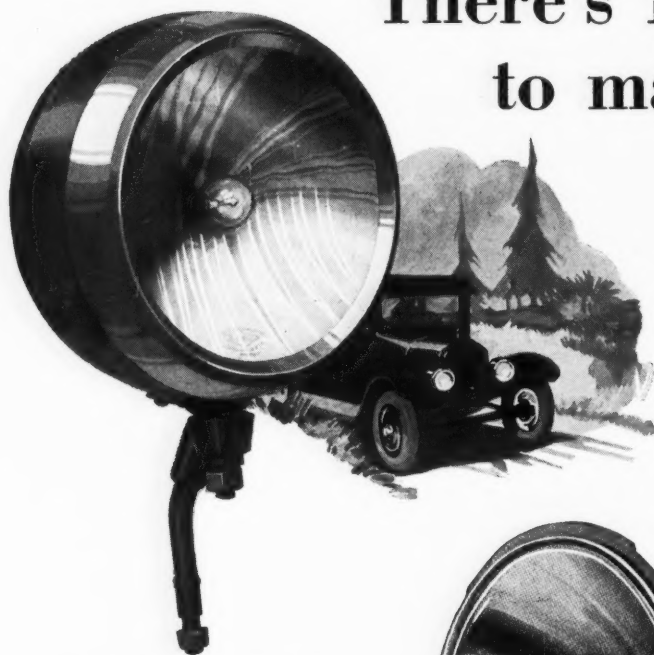
**A two-stager**

A Brunner starts quickly, works fast, runs smoothly without vibration, costs little to maintain, is super-safe and gives years of trouble-free service.

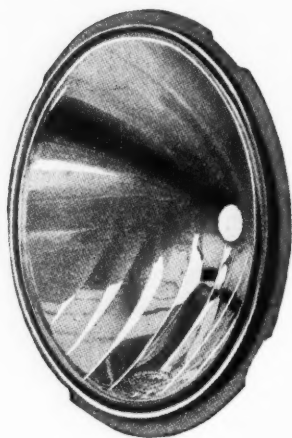
# "To use -to sell-to trade"

# Fix 'er up

## There's Nothing like LAMPS to make Used Cars Sell



No. 740-F Drum Type Headlamp for Fords. Makes any Ford look better. Come in both all-nickel and black and nickel. Tuliite bulbs and prismatic lenses or the Victor Projector. No change in wiring required.



The Victor Projector—A specially formed, silver plated shell that can now be furnished in Victor headlamps in place of the regular reflector and prismatic lens. It projects the full light of the headlamps hundreds of yards ahead but not above the level of the lamps. Legal for use in all states.



The Warning Hand—A new Victor lamp with a double filament bulb. It flashes a red warning hand to signal stops. It throws a soft white light forward for courtesy and parking.

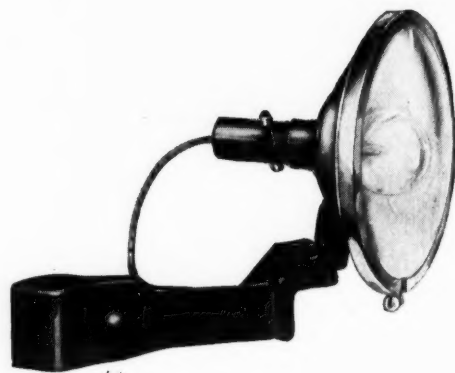
**T**O get rid of your Used Cars—you must make them ATTRACTIVE. One of the first things the average used car prospect sees is the LAMPS. New, glistening lamps of various types will do more to catch the eye and hold interest than any other single thing you can do.

Look over the Victor Line of Products—select a few of the most attractive items. You'll be surprised what this will do to your car sales.

Get the Victor catalog immediately and try this suggestion out. IT WORKS.

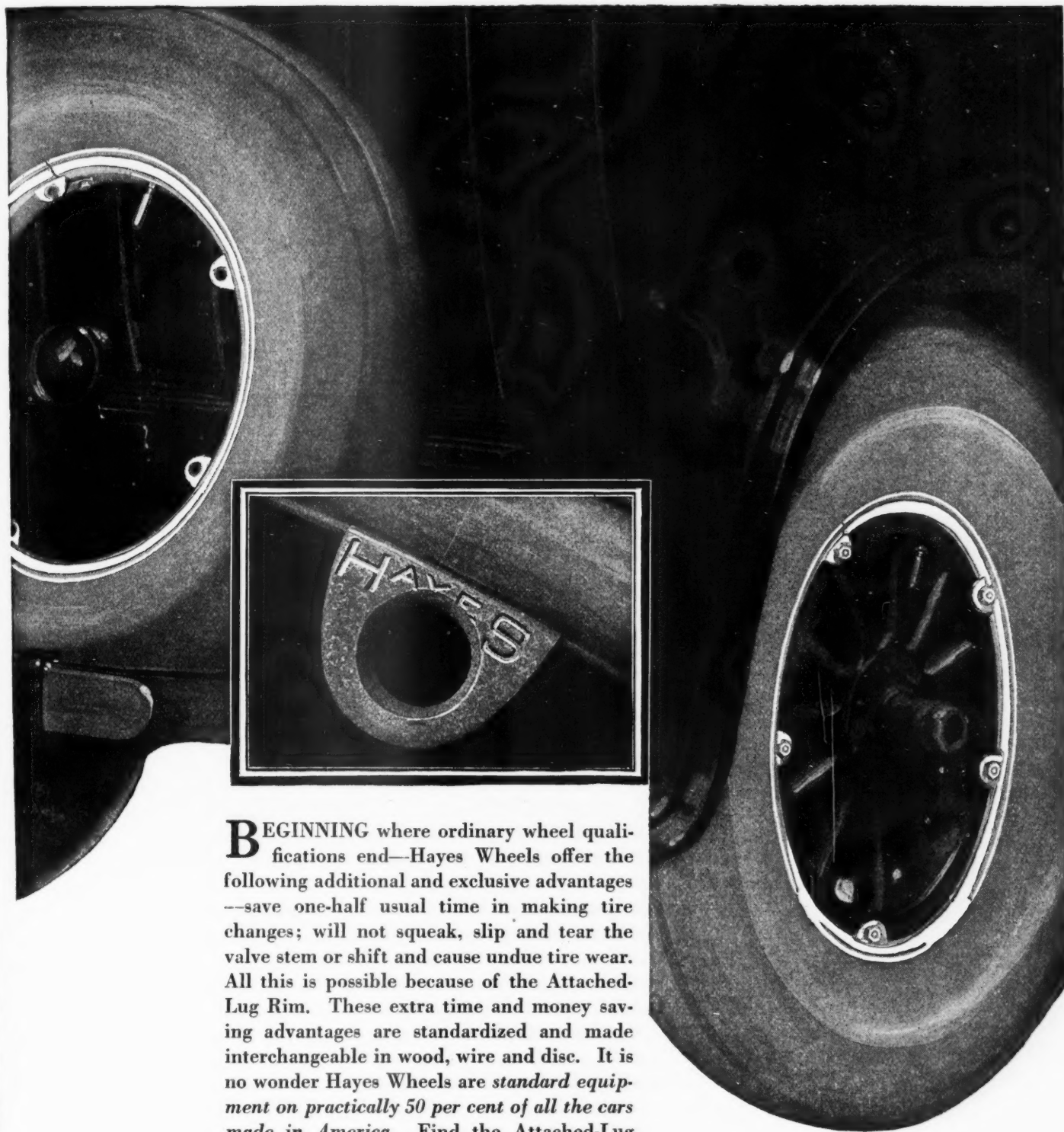


THE CINCINNATI VICTOR COMPANY  
714 Reading Road Cincinnati, Ohio



No. 41 Spot Lamp. The largest possible value at a low price. Fixed focus. Projects a highly concentrated beam of light. Built-in on and off switch.

# " To use -to sell-to trade "



**B**EGINNING where ordinary wheel qualifications end—Hayes Wheels offer the following additional and exclusive advantages—save one-half usual time in making tire changes; will not squeak, slip and tear the valve stem or shift and cause undue tire wear. All this is possible because of the Attached-Lug Rim. These extra time and money saving advantages are standardized and made interchangeable in wood, wire and disc. It is no wonder Hayes Wheels are *standard equipment on practically 50 per cent of all the cars made in America*. Find the Attached-Lug and you know a Hayes Wheel. Find the name “Hayes” on the lug and you know it is the genuine.

156

HAYES WHEEL COMPANY, *Manufacturers*, Jackson, Michigan

Factories: Jackson, Albion, Flint, St. Johns, Mich.; Anderson, Ind.; Nashville, Tenn. Canadian Plants: Chatham and Merriton, Ont. Export Office: 30 Water St., New York City

# HAYES WHEELS

WITH ATTACHED LUG RIMS ~ STANDARDIZED IN WOOD, WIRE AND DISC



That the Buick Motor Company selected Watkins Rebabbling Service to rebabbit and rebuild Buick connecting rods for its branches, distributors and authorized dealers may suggest to you where to send connecting rods, of any kind, for expert reconditioning,



## Here's Why—

MECHANICS like Watkins Rebabbled Rods because they are machined accurately, center to center, the bearing is broached to standard crankshaft size, laminated shims are used, all enabling quick crankshaft fit and installation.

PROPRIETORS like Watkins Rebabbled Rods because they cut down time on flat rate repair jobs. They cost less than new rods, and help make the service department pay a profit.

CAR OWNERS, unknowingly, like Watkins Rebabbling because it enables them to get their cars running promptly—makes possible a reasonable bill—helps make them happy that they took their cars to you.

## WATKINS *Complete* REBABBLING SERVICE

Opens new profit possibilities for you. Learn the variety of bearing service a Watkins Plant can give you. Each Plant is equipped with special fixtures, tools, dies, machines, materials, blue prints, stocks of standard poured rods. Each Plant employs methods which extend rebabbling of connecting rods to complete rebuilding and beyond that class of work produced by a mere babbling jig and boring tool.

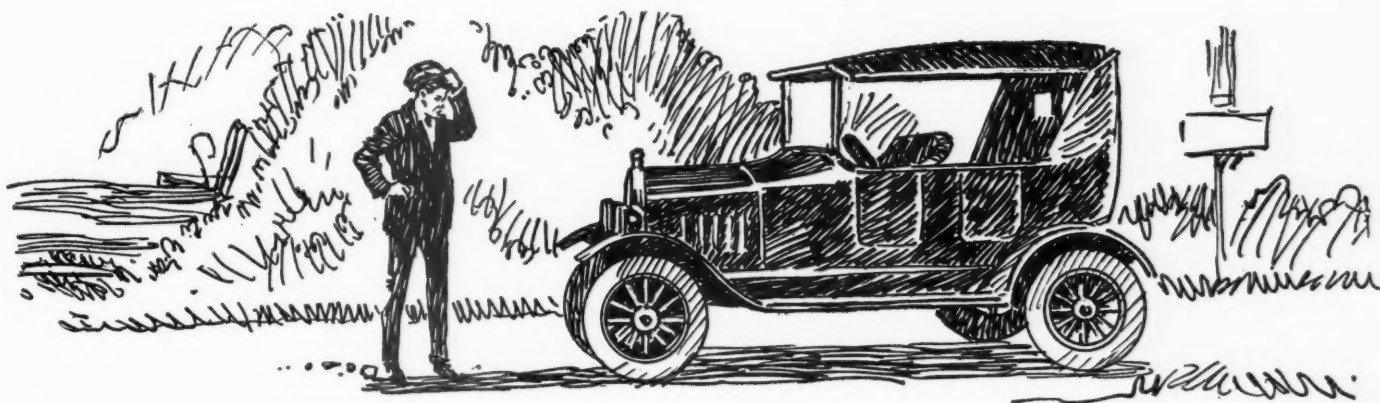
### Send Parts to Factory Nearest You for Quickest Service

Chicago, Ill., 57-61 E. 24th St. .... Berguson Skinner Corporation  
Hartford, Conn., 28 High St. .... Ripley Motor Services, Inc.  
Indianapolis, Ind., 19-29 W. South St. .... Indiana-Watkins Mfg. Co.  
Kingston, Ont. .... Watkins Mfg. Co., of Canada, Ltd.  
Los Angeles, Calif., 1007 E. Ninth St. .... Wright Mfg. Co.  
Memphis, Tenn., 278 Washington Ave. .... J. B. Cook Auto Machine Co.  
New York, N. Y., 27-37 W. 60th St. .... Lake Sales Company  
Omaha, Nebr., 1006-10 Douglas St. .... Interstate Machinery & Supply Co.

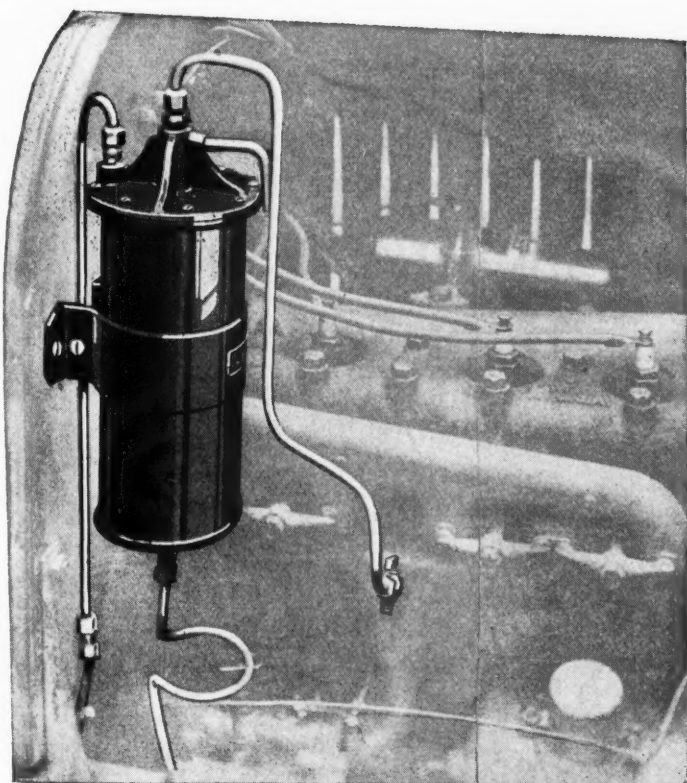
Portland, Ore., 14th & Everett Sts. .... Factory Motor Car Co.  
St. Louis, Mo., 4216 Easton Ave. .... H. & H. Machine Co.  
Seattle, Wash. .... Solon Grinding Co.  
Syracuse, N. Y., 201-211 Wyoming St. .... Watkins Manufacturing Co. of New York  
Toledo, Ohio, 1942 Putnam St. .... Stewart-Burgan Co.  
Washington, D. C., 1628 L. St., N. W. .... R-L Motive Parts, Inc.  
Waterloo, Ia. .... All States Rebabbling Service

**The Watkins Mfg. Co.      Home Office      Wichita, Kans.**

*Authorized Exclusively by Buick Motor Co., to Rebabble and Rebuild Buick Rods.*



***Yes, he's stranded without gas—a fine mess that could have been avoided—***



Mac's Gaselevator can be installed in half an hour and forever ends gravity feed troubles.

**\$7.50**

Mac's Gaselevator prevents any Ford running into such a fix.

Mac's Gaselevator and Emergency Reserve combined uses the vacuum of the motor to bring gas from the main tank to a tank right over the carburetor. Enough gas is reserved in this tank for eight miles of travel.

When the main tank is empty no gas is delivered to the carburetor until the reserve supply is released by turning a stopcock. When the main tank is refilled the reserve supply is automatically replenished.

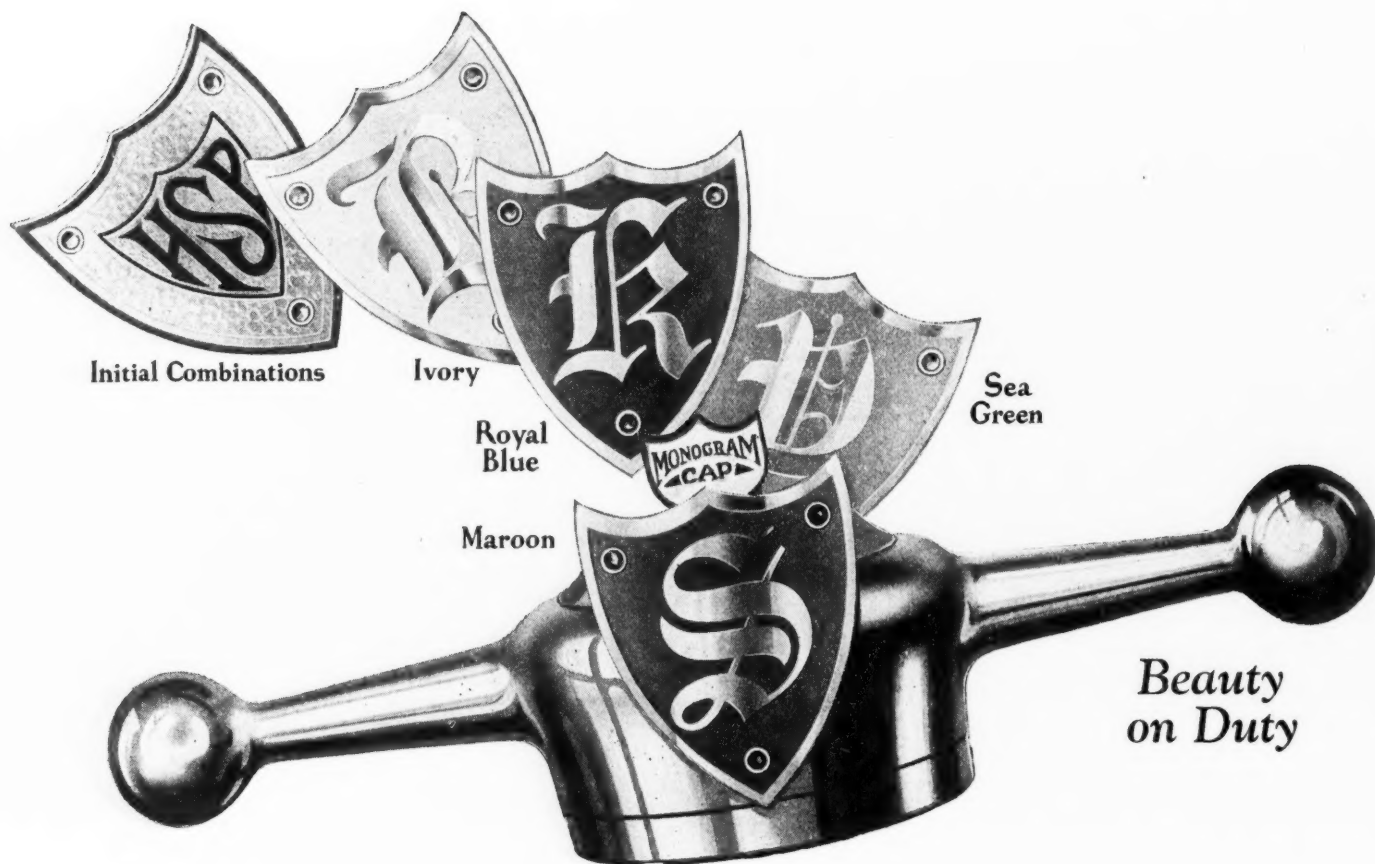
The price of this remarkable apparatus, including all fittings needed for installation, is only \$7.50 less than half the price asked for similar services without corresponding features.

*Write for complete details and list of discounts.*

**MOUNTAIN ACCESSORY CO.,**  
Emporium, Penna.

# Mac's Gaselevator

A VACUUM GAS FEED AND EMERGENCY RESERVE COMBINED



## Keep Ahead with Monogram

15,000,000  
automobiles  
—8 Monogram  
models fit  
14,000,000

Monogram Color Shields—*an exclusive hit!*—are just one more sign of Monogram leadership.

Leadership commencing when Monogram created the market for beauty, protection and distinction, such as Monogram alone provides.

Leadership evident in Monogram sales co-operation of the kind you had always wished for.

Leadership right in the unique Special Shield Plan itself. The customer selects his color shield, emblem or initial from the Order Book for Special Finish Shields. He's gratified. You carry no extra stock. There is neat extra profit.

If you don't know yet just how it works, see your Monogram distributor—to keep ahead with Monogram.

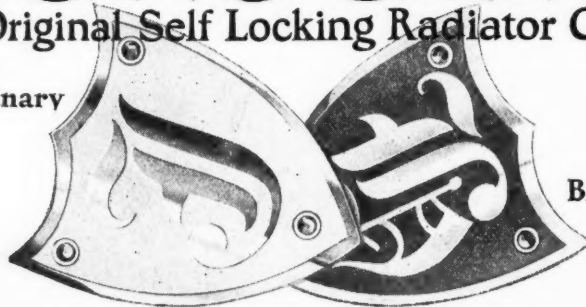
GENERAL AUTOMOTIVE CORP., 600 West Jackson Boulevard, CHICAGO

# MONOGRAM

Original Self Locking Radiator Cap

Canary

Brown







## A LAPS System Will Fulfill Every Claim We Make for It

EDWARD R. LITSINGER MOTOR CO.

Lincoln *Ford* Division

CARS-TRUCKS-TRACTORS

AUTHORIZED DEALERS

757-758 W. JACKSON BOULEVARD

CHICAGO

May 23, 1924

David Lupton's Sons Company,  
2631 Woodward Ave.,  
Detroit, Michigan.

Attention: Mr. F. E. Hannon

Gentlemen:

In connection with the LAPS 16 Unit System for the storage of Ford Parts, which we have been using now for quite a long time, we are more than pleased to tell you that we feel if we were to have to get along without this method of caring for our parts we would be pretty much up against it.

The system has certainly fulfilled in every way the claims made for it and has put our parts department in such shape that they can handle the storage and delivery of the parts in a most efficient and economical manner.

There isn't any question at all in the mind of the writer but that any dealer who is not using this system can increase his parts sales and handle the parts in every way in much less time and at a much smaller cost than is possible with other methods.

We really feel that the system is in every sense of the word a "real investment".

Very truly yours,

Edward R. Litsinger Motor Company.

*E. R. Litsinger*  
Vice-President.

We claim that LAPS Systems will

1. Save your time.
2. Improve your service.
3. Please your customers.
4. Increase your parts sales.
5. Increase your profits.
6. Make inventory-taking easy.
7. Prove a real investment.

Edward R. Litsinger Motor Co. say their LAPS System "has fulfilled in every way the claims made for it." You'll say so too.

Laps Systems are manufactured solely by David Lupton's Sons Co., and sold by Lupton jobbers

**DAVID LUPTON'S SONS CO.**

Sales Office: 2631 Woodward Ave., DETROIT

Main Office and Factory, PHILADELPHIA

# LUPTON AUTO-PARTS STORAGE



## Six o'clock and all is well— LAST SALE MADE—ALL RECORDS, TOO—

The Sundstrand Combination Cash Register forces correct and immediate recording of the who, what, when and why of each transaction. It clearly indicates on the detail strip which clerk, what department and whether cash, charge, paid out, or no sale. Handy sliding levers on a clean-cut dial make operation quick, easy and positive. Levers **MUST** be operated before amount can be recorded or cash drawer opened. The register can't forget and won't let the clerk.

Clerk, customer and proprietor—all are protected. Each clerk gets full credit for all sales. Customer gets quick service, and disputes are avoided. Proprietor always knows "what's what"—operates his business with peace of mind, having reliable facts on which to base right action. Losses due to errors are eliminated. Greater profits are assured.

Let us show you, in your own store, how this low cost machine offers two services—cash register and adding machine. Credit file furnished at slight extra cost. No obligation. Address Dept. M-8.

- 1 CASH REGISTER**—Classifies sales by clerks and departments. Makes a non-erasable record. Forces correct indication and recording of cash, credit, paid out, etc. You read cash total any time. Tape rewinds and locks in machine.
- 2 ADDING MACHINE**—Famous 10-key Sundstrand adding machine—adds, multiplies, etc. Saves time, effort and prevents errors in checking sales slips and inventory sheets, footing ledger, bank balances, etc. Range 1c to \$99,999,999.
- 3 CREDIT FILE**—Extra equipment at slight extra cost. Names visible. Balance due posted to date. You make settlements from original sales slips. Statement goes with each purchase. Put trays in safe at night, the only real fire protection. Holds 90 credit accounts, 2700 sales slips. Add more trays if desired. Saves hours of book-keeping.

# Sundstrand COMBINATION CASH REGISTER

ADDS—MULTIPLIES—AUTOMATIC CONTROL—FORCED (CORRECT) INDICATION

Sundstrand Adding Machine Co., Rockford, Ill., U. S. A.

*Sales and Service Stations everywhere in the United States and foreign countries*

# They're Talking Parts, Now

In the general magazines, in the columns of the newspapers, on the salesroom floor, there is a gradual swing to the selling talk on parts. This is more than a surface trend. The demand for it lies in the car buyers' attitude.

Beautiful body lines still have their appeal. But good-looking cars are the rule, today. So the car owner says, "Which car will be the most economical to operate?" Hence, the talk about parts.

And when the talk turns to car parts, the mention of Timken Bearings settles the bearing question once and for all—avoids the need of lengthy explanations.

Don't overlook this fact in your selling talk. If there are Timken Bearings in the car you sell, mention them. They are one of the best known parts in your car.

The name Timken carries weight with any prospect. Use it—to *your* advantage.

The Timken Roller Bearing Company  
CANTON, OHIO



© 1924, T. R. B. Co.

**TIMKEN**  
*Tapered*  
**ROLLER BEARINGS**



Time to Re-tire  
Get a Fisk  
Trade Mark Reg. U. S.  
Pat. Off.

## Fisk Red-Top Tire (Cord and Fabric)

## Profits are Certain Wherever You Are

**E**ACH year the number of exclusive Red-Top users increases. More pleasure cars— more light delivery trucks in every kind of service equip with Red-Tops after thorough comparisons with other makes and types of tires.

But the most significant thing to you is that these Red-Top buyers will continue to buy Red-Tops. They know why they want Red-Tops and why no substitutes will do. They know the value of the extra ply and the extra tough red tread rubber.

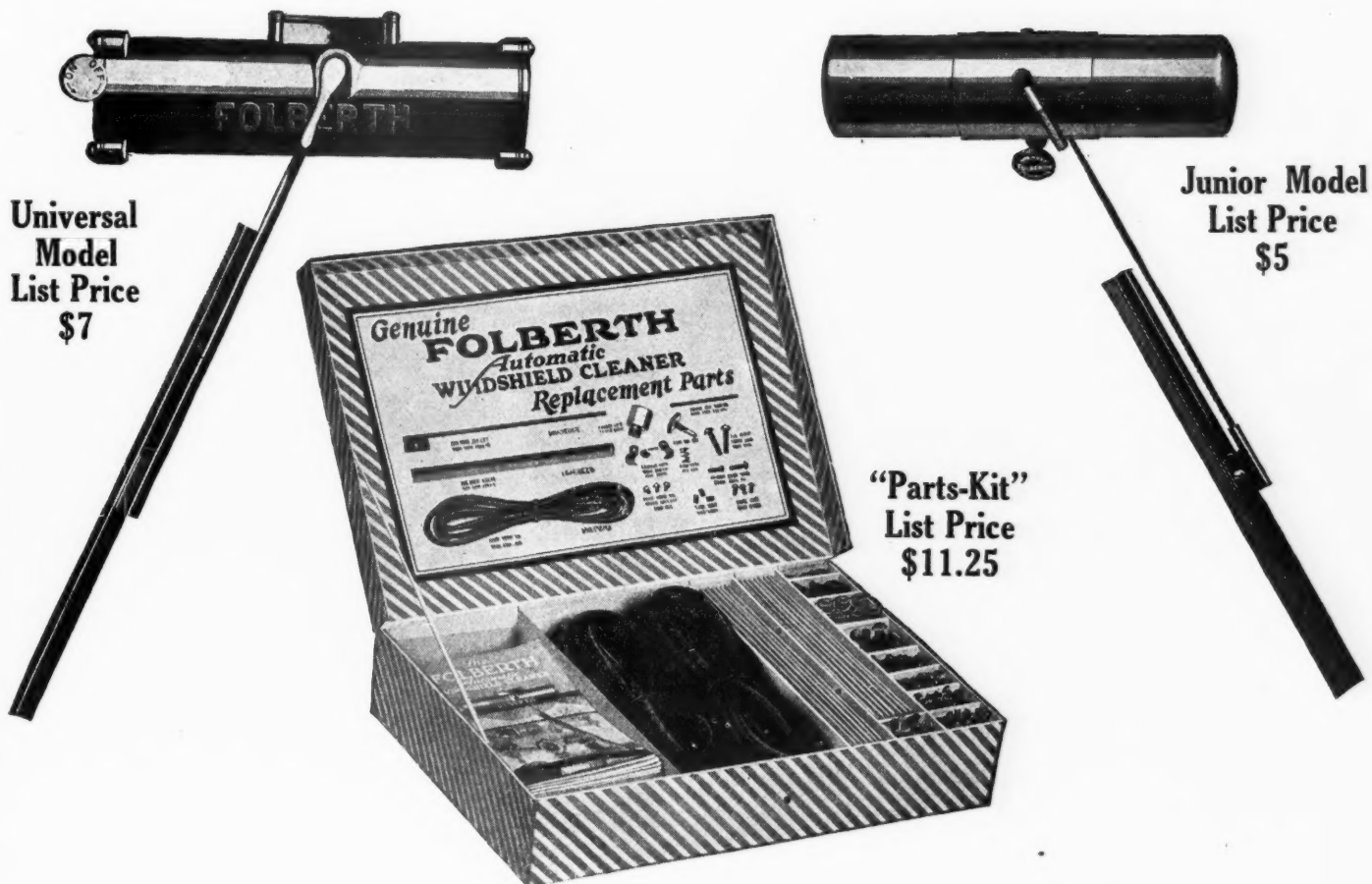
You need only sell a few Red-Tops to see for yourself that they are the greatest business building tires ever known.

*Fisk Balloon Tires for the convenience of dealers are distributed through 142 Fisk Wholesale Branches. This is the widest distribution in the industry.*

**The Fisk Tire Company, Inc.**  
Chicopee Falls, Mass.

**Sell  
Fisk Red-Tops**





## “Three Best Sellers!”

**T**HE Folberth “Universal” model has proven itself to be the best automatic windshield cleaner built. 38 automobile manufacturers have adopted it as standard equipment. Over a million are now in use.

The Folberth “Junior” model is smaller and lighter than the “Universal.” With these two cleaners the Folberth dealer can satisfy the demands of every class of the automobile trade.

The Folberth “Parts-Kit” includes a liberal quantity of cleaner parts, a free set of special installation and adjustment tools, and a generous supply of advertising folders. The “Parts-Kit” makes an attractive counter display and builds sales of Folberth parts.

Ask your jobber or write us direct for full information. Start now to get your share of this fast growing business.

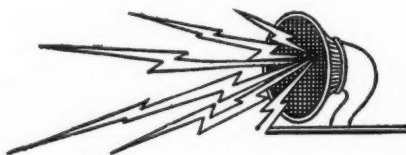
THE FOLBERTH AUTO SPECIALTY COMPANY,

Cleveland, Ohio

### SALES HELPS

Send for large six-color window display and numerous other sales helps. If your jobber cannot supply you promptly write us direct.

**FOLBERTH**  
*Automatic*  
**WINDSHIELD CLEANER**  
*“It Cleans While You Drive”*



## You can turn that "morgue" into cash, Mr. Jobber!

Don't tie up your capital in big inventories. Get rid of that "morgue" in your store or warehouse and have more capital as well as space for items which have a ready sale *in your territory*.

All the accessories, parts, equipment for which there is no local demand you can sell at a price that will make their clearaway *profitable*.

Someone somewhere wants to buy those items you want to sell. And he, in turn, may have something you would be glad to buy "at-a-price."

The more than 80,000 readers of Motor Age, Motor World and Automobile Trade Journal are the active dealers, jobbers and garagemen—and excellent prospects for just those things you want to sell. You can reach these progressive, prosperous prospects through a Broadcaster advertisement.

You can afford Broadcaster advertising. The cost is slight. Undisplayed ads are 6c a word in Motor Age or Motor World; 10c a word in the big monthly Automobile Trade Journal.

### *The* Broadcaster A DEPARTMENT THAT WILL FIND WHAT YOU WANT

For Broadcaster rates in Motor Age, Motor World, Automotive Industries, Automobile Trade Journal, Distribution & Warehousing, address the Class Journal Company, 5 So. Wabash Ave., Chicago, Ill., or 239 W. 39th St., New York.



# The Newest Advancement In Motoring Comfort

Now for the first time, the new Gabriel Balloon-Type Snubbers enable motorists to realize all the benefits of balloon or low-pressure tires, on all roads, with all loads, and at all speeds.

These new Gabriels are entirely new in principle—and produce tremendous advancements in motoring comfort.

The message about these new Gabriel Balloon-Type Snubbers is being broadcast to motorists everywhere, in two-page and full page advertisements in national publications.

Every day hundreds are equipping with these new Gabriels, along with balloon and low-pressure tires.

Here is good business for you—and very profitable business, due to the liberality of the new Gabriel sales proposition.

Now is the time to stock Gabriel Snubbers—to capitalize on the news value of the new type snubbers. Write the nearest Gabriel distributor, or direct to us.

GABRIEL MANUFACTURING COMPANY  
1415 East 40th Street, Cleveland, Ohio  
Gabriel Manufacturing Co. of Can., Toronto  
~ Sales & Service Everywhere ~

Use Gabriel Balloon-Type Snubbers with all balloon and low-pressure tires—no other device offers you their advantages.

They possess exclusive features which were developed after exhaustive analysis of low-pressure tire requirements.

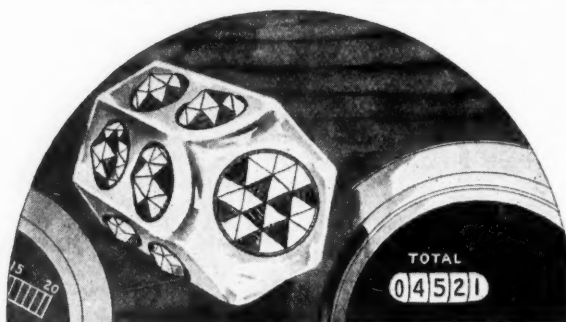


*New  
Balloon  
Type*

# Gabriel Snubbers

## IN GREAT DEMAND WITH CAR OWNERS

**RAINBO  
LAMP**



**DASH  
CAP**

NOTE PATENT NO. ON  
CAP AND BOX

REG. PAT. NO. 1,440,738

The fastest selling novelty in the accessory field. To see one—is to buy one.

Made of highly nickel plated white metal and studded with nine jewels in many colors that sparkle in the light of day and illuminate at night. Replaces the old dash lamp by simply slipping over bulb and tightening one small screw.

Exclusive patent rights held and manufactured only by

**RAINBO ACCESSORIES CO.**

820 W. GRAND AVE., CHICAGO, ILL.

*Your Jobber will supply you or write direct*

## A Chain-Store Idea

It sometimes happens that one store in a chain-store system will find itself in possession of certain merchandise that doesn't sell.

But we are told that often when the same goods are sent to another of the chain-stores, located in another city, they are quickly disposed of.

It seems that peoples' tastes differ in different parts of the country; and that often merchandise which is a loss in one place, sells like hot cakes somewhere else.

Have you any merchandise that won't sell?

Advertise it for sale in the Broadcaster Department of this paper. It may be just what some other dealer wants. Only six cents a word. Try it.

*The*  
**Broadcaster**

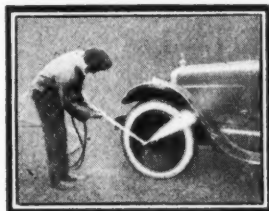


# You Can Do All of These Profit Jobs With a U. S. Air Compressor.

**T**HE L. B. 5 U. S. Air Compressor makes money for you by handling service operations by *air pressure* in half the time it takes to do them by hand. The L. B. 5 does things no small Air Compressor can do through supplying a *tremendous volume of air!* With it you save time and labor on the many different jobs listed below. Write for complete information.



Spraying Duco Paint with the U. S. Compressor



Washing and Cleaning Cars with the U. S. Compressor



Cleaning Engines with the U. S. Compressor

Spray Duco paint.  
Clean engines.  
Wash cars.  
Blow carbon after scraping.  
Clear fuel and oil lines.  
Test radiators, tanks and hollow shafts.  
Dry wire wheels and chassis parts.  
Clean stock bins, tool racks and display cases.  
Clean upholstery.  
Dry gasoline tanks before soldering.

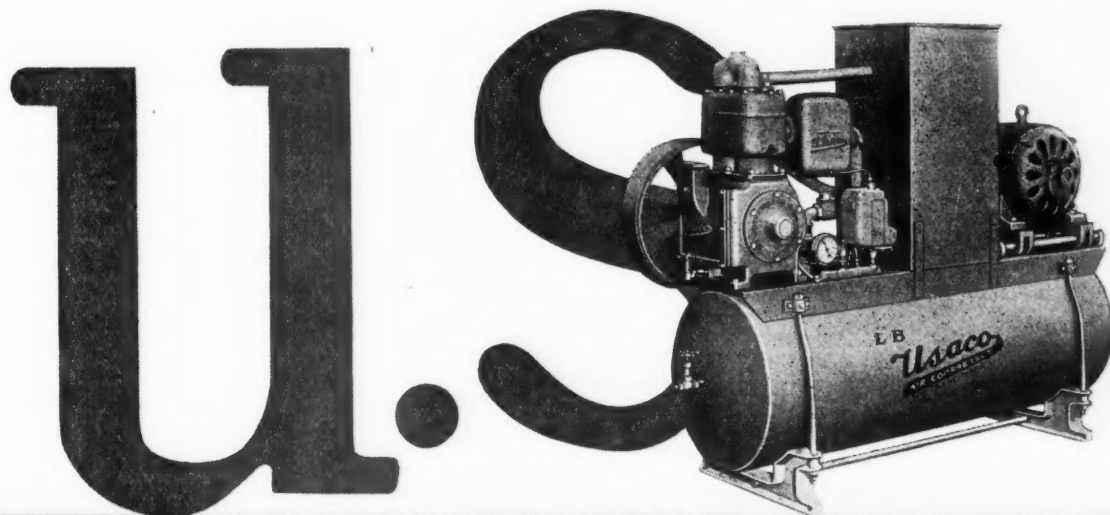
Clean generators, distributors, etc.  
Dry assembled bearings after kerosene or acid bath.  
Clean dust, bugs, twigs and road oil from radiators.  
Clean complete motor.  
Wash chains, springs, gears, bearings and similar parts.  
Oil springs.  
Spray suds or solvents.  
Operate air torch using natural or manufactured gas, acetylene, presto-

lite, gasoline, vapor or other combustible fluids for melting, soldering and forge welding.  
Operate air hammer.  
Operate chipping hammer for gear removal, bushing replacement, riveting and metal cutting and for cutting grooves in solid tires which have worn smooth.  
Operate air jack, saving labor and time in servicing heavy trucks.  
Operate pneumatic valve grinders.

## THE U. S. AIR COMPRESSOR COMPANY

5304 Harvard Avenue

Cleveland, Ohio



# U.S. Air Compressors

**Usaco**  
TRADE MARK



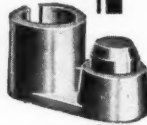
# The Life Timer for Fords

**sells easily because  
it is unconditionally  
guaranteed**

Because the Timer is so rugged, it is not difficult to live up to this broad guarantee.

It is short-proof, needs no oil and does not require the meddling attention which often causes the downfall of ordinary timers.

*Perfect contact on any Ford  
assured by this rotor*



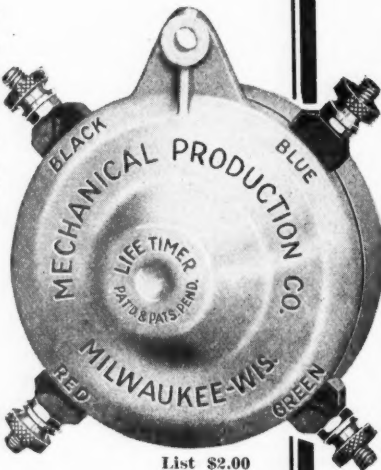
Even if the cam-shaft has end play or wobble, the LIFE TIMER requires no attention, for the construction of the rotor assures perfect contact at all times.

**Two Timers for the price of one**

Then, if after thousands of miles of service the Bakelite Commutator shows signs of wear, it is a simple matter to reverse it. Thus, in selling the LIFE TIMER, you give the equivalent of two good timers for the price of one.

**Profit for you in  
selling this Timer**

Certainly there is profit awaiting you in selling this unusual timer.



List \$2.00

**Try it out yourself. Order a trial dozen in  
attractive carton from your Jobber.**

**Mechanical Production Co.  
Milwaukee, Wis.**

## GF Allsteel

The Complete Line of Office Equipment

### Unette and Wydesteel Filing Units

**Utility**—Units for every size record grouped in most convenient arrangement.

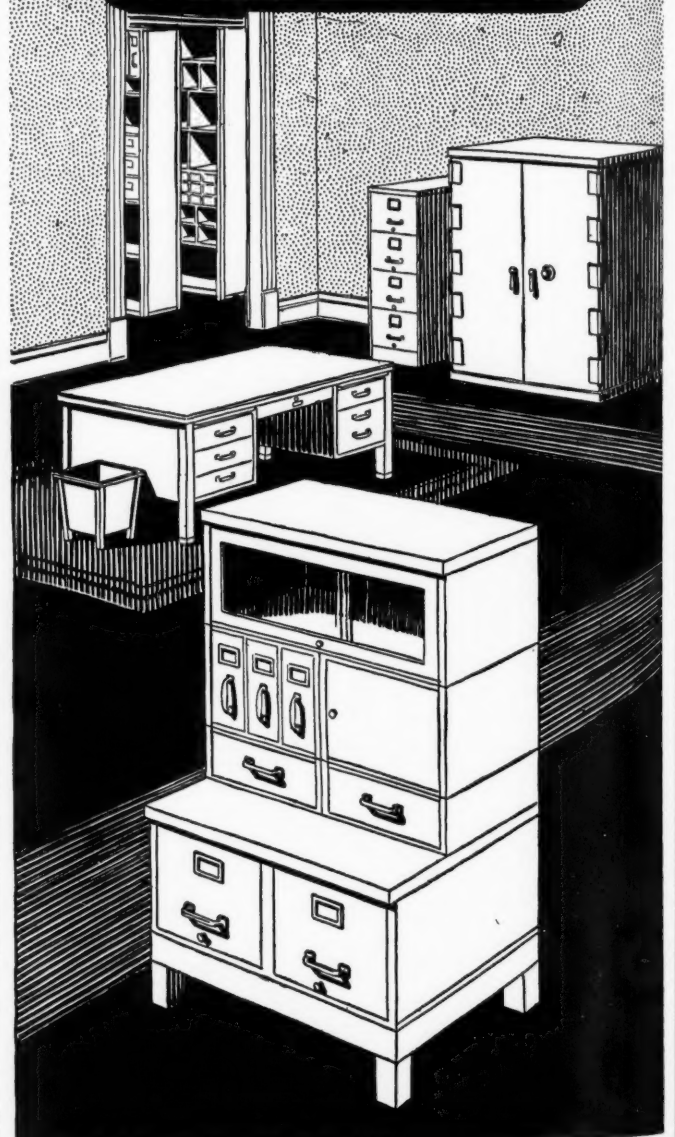
**Flexibility**—Units re-grouped or expanded at will.

**Strength**—Simple interlocking feature makes all combinations rigid units.

**Appearance**—Rich, baked-on enamel, olive green or grained.

**Permanent**—Welded steel construction and lasting finish make permanent investment.

*Shelving, Files, Desks, Transfer Cases, Safes,  
Counter-heights, Sectional Cases, Accessories and Supplies*  
**THE GENERAL FIREPROOFING CO.**  
Youngstown, O. *Dealers Everywhere*



## **Climax** MUFFLER CUT-OUT · PRESSED STEEL ·

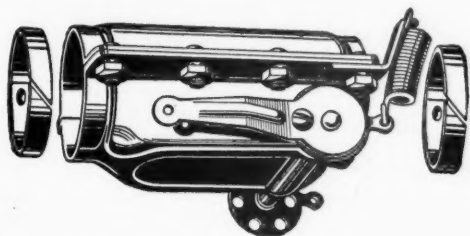
will *increase*  
your sales  
and *decrease*  
your investment in  
Muffler Cutouts

When you stock Climax Cutouts, you need only 4 sizes to fit 92 per cent of all the cars made. You can invest the savings in other desirable merchandise.

There is a big advantage to you in this plan regardless of the size of your business.

### **The *unbreakable* motor testing valve**

Climax Cutouts are rattle-proof, warp-proof, sound-proof, light weight, serviceable, inexpensive and last as long as the car. *And they are easily installed.*



#### **The "4 in 1" with interlocking bushings**

Fits Dodge, Buick, Studebaker and more than thirty-five other cars and ten trucks in popular demand. \$4.00 complete.

Other sizes—Ford \$3.00; 4 in 1 Special (1½ in.-2 in.) \$4.00; 2¼ in.—\$4.50—control equipment included. Liberal discounts.

Freight allowed on jobbers' orders.

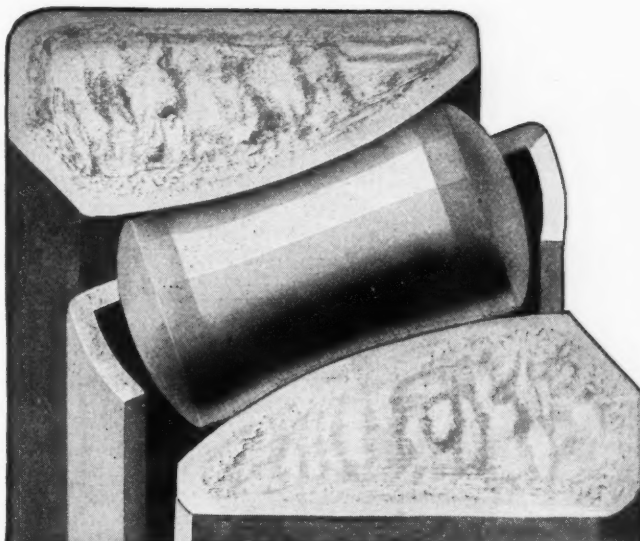
Order from your Jobber for  
immediate delivery

*Information upon Request*

## **Climax Equipment Co.**

1827 San Fernando Road

Los Angeles, Calif.

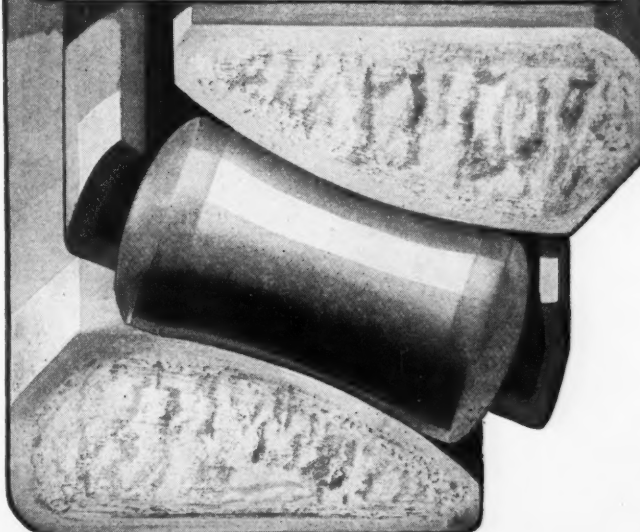


## **SHAFER** *Self-Aligning* ROLLER BEARING PAT. & PATS. PENDING

**P**ROOF of the Shafer principle is substantiated by the thousands of cars Shafer equipped, giving their owners long and satisfactory service. They are self-aligning and carry all combinations of thrust and radial loads.

*Furnished in  
Interchangeable Sizes*

**SHAHER BEARING CORPORATION**  
6501 WEST GRAND AVENUE  
CHICAGO, ILL.







## "If I'd Only Bought That Autowline!"

Picture a muddy country road, miles from town—your car is deeply mired in a ditch—and on top of that it starts to rain! Finally you have hope—you hear another car approach—you stop it—but no use; its driver left his Basline Autowline at home. And you have always put off buying one!

Don't wait until such a situation actually *does* happen; safeguard against emergencies by getting a Basline Autowline at once. Then carry it with you at all times; it weighs only several pounds, and fits under your seat cushion. It's the "Little Steel Rope with the Big Pull."

Basline Autowline is made of world-famous Yellow Strand Wire Rope. Insist on getting this *original* wire rope towline. Snaps on instantly and securely with patented Snaffle Hooks. Only \$4.95, east of the Rockies.

### MONEY FOR JOBBERS and DEALERS

Basline Autowline pays you a good profit, it sells well, and is the **ONLY** Nationally-Advertised towline on the market. Push it this season.

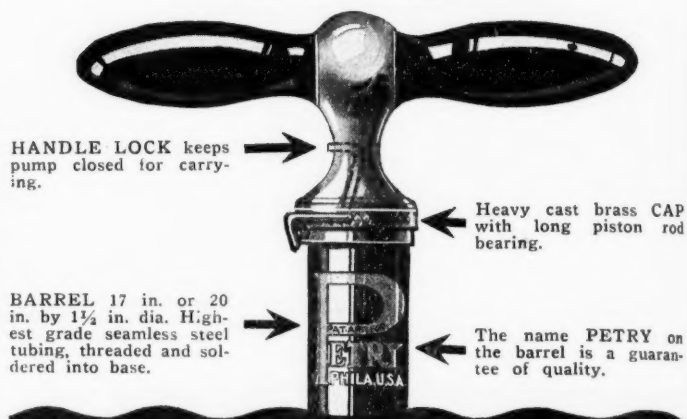
**BRODERICK & BASCOM ROPE CO.**  
ST. LOUIS—NEW YORK



# BASLINE AUTOWLINE

# A Powerful PUMP

Specially designed for use in Service Stations



By buying *now* you can secure "America's Best Tire Pump" at exceptionally good terms. Correspondence invited.

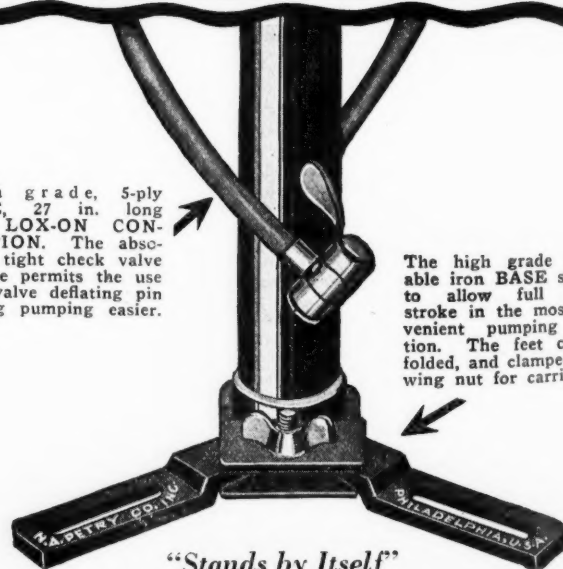
**N. A. PETRY COMPANY, Inc.**

North Randolph Street

Philadelphia, Penna.

High grade, 5-ply HOSE, 27 in. long with LOX-ON CONNECTION. The absolutely tight check valve in base permits the use of a valve deflating pin making pumping easier.

The high grade malleable iron BASE spreads to allow full piston stroke in the most convenient pumping position. The feet can be folded, and clamped with wing nut for carriage.



"Stands by Itself"





## New Opportunities for the Garage Owner

Never in the history of the automotive industry have there been such opportunities for the shop equipped to handle re-conditioning work. With nearly 16,000,000 cars and trucks in service in the United States, every locality offers its quota of this class of business.

Why not start now to get your share? All you need is a set of Foster-Johnson re-conditioning tools and you can do better work than that turned out by a \$3,000 grinder.

## F-J Method Saves Both Time and Money

You can ream and hone an average cylinder block in from thirty to sixty minutes. This saves your customers' time and keeps the work moving through your shop faster. You can also handle each job more economically and with greater profit to yourself.

Foster-Johnson equipment includes: Piston and Cylinder Reamers and Hones, Kylin General Purpose Reamers and Reamer Sharpeners for servicing the tools you use.

*Write for our Station Manual and Complete Catalogue of Re-Conditioning Tools*

**FOSTER-JOHNSON REAMER CO.**  
1308 Beardsley Avenue  
ELKHART, IND.

**cuts them all**

**bolts  
rods  
wire  
cable**

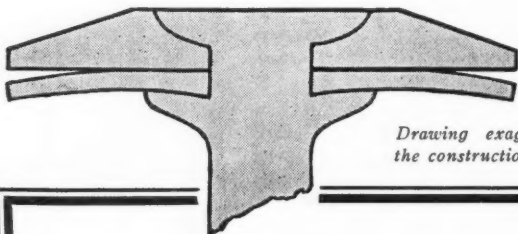
Cuts them easily and quickly, saving hours of time and a vast amount of hard labor.

The cost of a Bolt Clipper of good, practical size is so low as not to be considered in view of the efficiency of the tool and the saving resulting from its use.

If you are handicapping yourself with the old-fashioned method—cold chisel or hack saw—get acquainted with **PORTER'S BOLT CLIPPERS** without delay!

Ask your tool dealer or write direct to us for descriptive booklet.

**H. K. PORTER, INC., Everett, Mass.**



*Drawing exaggerated to show the construction of Boyle Valves.*

## The Valve that makes a good motor better

With bevel seating, solid head valves you sacrifice power and economy for quietness; or quietness for power and economy.

With BOYLE NEVERGRIND, FLAT SEAT, SILENT VALVES you sacrifice nothing, due to the separation at the outer edge between crown and seating plate which deadens all sound. The wiping of this lower plate, as it seats, also eliminates re-grinding.

## BOYLE Nevergrind, Silent VALVES

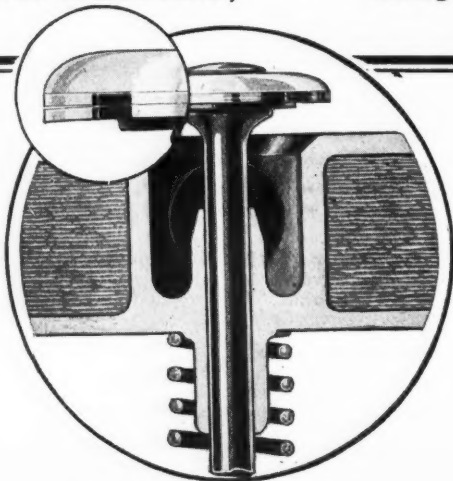
These valves, without interfering with quiet operation, can be given greater tappet clearance to take care of linear expansion. This insures power and economy with quiet operation.

The flat seat of the BOYLE VALVE results in greater power and speed.

Installed in less time than it takes to re-grind ordinary valves. Not high priced. They carry a good discount.

*Write for prices, discount and literature*

**BOYLE VALVE COMPANY**  
5821-23-25 S. Ada Street, Chicago, Ill.



## Our~ SAMPLE OFFER a Wonderful Sales Builder

DEALERS everywhere use this effective method for introducing H L F to their customers—10 cent trial size bottle and imprinted coupon blotter. It goes over big, quickly, easily and creates sales immediately. This is but one of our many modern merchandising methods that "CLEAN UP" profits for the dealer and jobber.

# HIGH LUSTRE FINISH

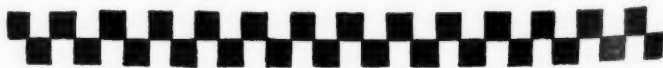
*Distributed exclusively through the jobbing trade*

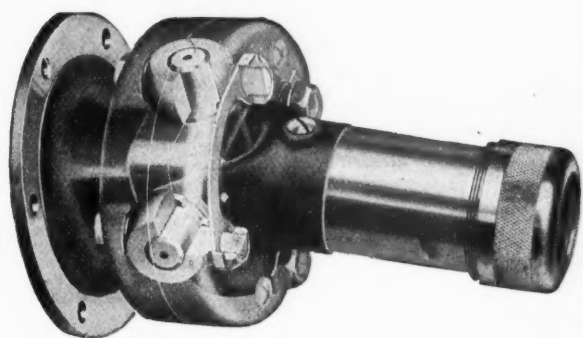


We furnish the Trade with *real* co-operation that justifies confidence in H L F and its ability to earn dollars and owner satisfaction.

*Note our advertising in  
The Saturday Evening Post*

**H. L. FEASEL'S LABORATORY**  
9-11-13 DESBROSSES ST. NEW YORK, N. Y.





## "MECHANICS" Oil Lubricated Universal Joint

It has not taken this industry long to appreciate the profit in a good re-conditioning job. And in acquiring this slant, Service Stations have learned the folly of attempting to repair many parts which are so intricate or so badly worn that the finest work can give but temporary relief.

Universal Joints, of the ordinary type, are particularly difficult to handle; and many of the best shops have found that by replacing worn joints with "MECHANICS" they do the best kind of work.

This Universal comes to you completely assembled, filled with oil and ready to hook up with the companion flanges already on the car.

Once installed, your customer is done with Universal Joint trouble for the life of his car; and you can assure him that his "MECHANICS" will not need any attention—other than oiling once or twice a year.

*Write for prices and full information*

**Mechanics Machine Company**  
Rockford, Illinois

## Piston Pins

Complete line—pins for every make of passenger car, truck and tractor.

Made from same steel called for by the original manufacturer. All steel analyzed before use.

Exact duplicates of original manufacturers design.

Triple heat treated in thermostatically regulated furnaces to insure even grain, depth of case and hardness. Sand blasted to remove scale.

Finish ground on centerless grinders, round straight and to size within .0002".

Individually dried, oiled and wrapped in wax paper—no rust. Packed in sets in the orange and black box—no mixing.

Uniform—all the pins in a box exactly alike.

**King  
Manufacturing  
Corporation**

BUFFALO, NEW YORK

WAREHOUSES  
2113 Michigan Avenue, Chicago, Ill.  
Bridgeburg, Ont. Can.





Effective!



Harmless!

## Sails Through Tar!

They like Pontoklene! Summer after summer it has been making life easy for the fellow who sits at the wheel and sees his polished car getting splashed with road oil and tar. Now he doesn't detour to get away from them. At the end of the trip he applies Pontoklene. In a few minutes the tar and grease are gone—the original lustre of the car is restored! He wants Pontoklene and more Pontoklene. Order a supply from your Jobber today. Retails at \$1.00 a can.

**THE PONTOKLENE COMPANY**

2604 Main Street

Norristown,

Pennsylvania

## We Ask But This One Favor—



Just try our "not-over-a-day-away" service on Milwaukee crankshaft and connecting rod bearings. Make us prove what we promise — the fastest, surest bearing service on the continent. Five hundred and fifty Milwaukee distributors carry the sizes most in demand in their respective territories. Write for name and location of the one nearest you. Wire him when the next job comes in and he'll have new Milwaukees in the mails before you get the other bearings out.

MILWAUKEE DIE CASTING COMPANY  
Dept. F-8 Milwaukee, Wis.

**MILWAUKEE** Not Over a Day Away **BEARINGS**

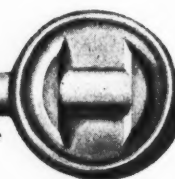
# Bosch

Franchise Details for  
Selling Genuine Bosch  
Products Will Be Gladly  
Sent to You Upon Request

*Always look for the full  
name "Robert Bosch"  
and trade mark shown  
below.*

ROBERT BOSCH MAGNETO CO., Inc.

109 West 64th Street  
New York



Trade

Mark

## SAVE TIME! IN STOPPING END-PLAY IN THE FORD CRANKSHAFT

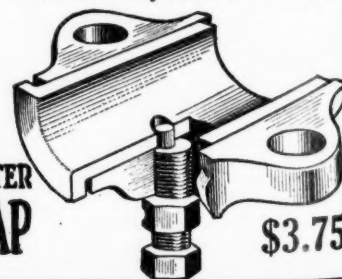


The C-A Adjustable Bearing presents a new and better way of stopping Ford crankshaft end-play. A cheaper, easier method that POSITIVELY corrects this cause of hard starting, poor lights, knocking and the many other troubles due to destructive end-play. A real quality device. Easily and quickly installed—leave the motor in and simply drop the oil pan. Let us tell you how to stop end-play without "pulling" the motor.

ADJUSTABLE BEARING  
COMPANY, INC.

Dept. 401  
BRAZIL, INDIANA

**CA** ADJUSTABLE CENTER  
BEARING CAP



\$3.75

## Kuls-A-Ford

(Cools every Ford)

**A great money-maker for dealers—  
Ford Owners buy it eagerly—on sight**

Replaces the regular transmission housing cover, using the same holes and screws. No dirt can enter, no oil leak out. Releases hot, cutting gases which foul the oil; and lowers crank-case pressure.

Help keep the Ford engine cool and the oil clean. Increases oil efficiency and gas mileage. Reduces oil pumping. Forces a stream of clean oil over transmission and brake bands at lowest oil levels.

Is it any wonder they sell fast at \$2.00? Big discount, too.

*Don't delay. Write for literature and prices, NOW*

**\$2<sup>00</sup>**  
List

Every claim can be proven. Ford owners are boosters.

**JOBBER  
WANTED**

Liberal jobber arrangement obtainable. Write for full particulars.



**BUNKER SALES COMPANY**

*Exclusive Distributors*

1934 Main St.

KANSAS CITY, MISSOURI

## WANTED! STATE DISTRIBUTORS

**For Two Live Auto Accessories**

POPULAR PRICED.

VOLUME SALES.

BIG PROFITS.

TREMENDOUS DEMAND.

SELLS TO JOBBERS AND  
DEALERS.

SMALL STOCKROOM SPACE.

PUT UP IN ATTRACTIVE  
PACKAGES.

ADVERTISING CAMPAIGN.

NOTHING TO INSTALL.

SELLS 12 MONTHS IN A

YEAR.

NO COMPETITION.

If you are financially responsible to carry a stock of \$1500.00 to \$3000.00 worth of merchandise—

If you are seeking a permanent connection with a live organization—

If you want to cash in with big profits for the future—  
Be you an individual or an organization

*WRITE OR WIRE FOR FULL DETAILS*

## DENLEY

20 EAST JACKSON BLVD.

CHICAGO, U. S. A.

**Costs \$5.00—Sells for \$20.00—  
You Make \$15.00**

This is the story you'll get from the Jobber's salesman and it doesn't sound bad—at all.

Peck's Improved Assortment of Springs specially selected for Garages and Service Stations costs \$5.00. The use of these springs on repair jobs brings you in \$20.—Plus. Your profit is \$15.00—Plus.

*If the salesman doesn't reach you soon—write your jobber.*

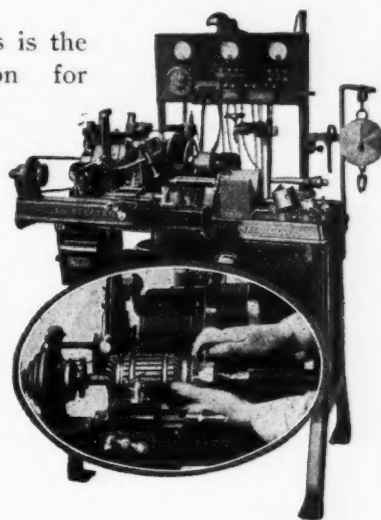
**The Peck Spring Co.**  
PLAINVILLE, CONN.

## Allen Universal Test Stand

**Complete with Lathe and Mica Undercutter**

Engineers say this is the finest combination for electrical testing ever used in a service station.

Power in abundance, simple to operate and absolutely accurate—Allen Universal Test Stand is a splendid investment.



**Allen Electric Mfg. Company**

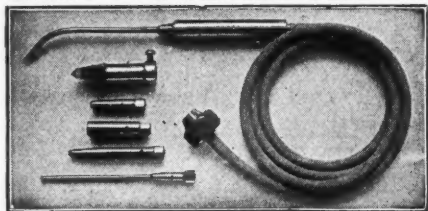
2051 W. Lafayette Blvd.

Detroit, Mich.



## THE BEST TOOL IN THE SHOP!

Every  
garage  
needs  
one



Handy  
for the  
small  
jobs

Every purchaser of TOIT ACETYLENE TORCH No. 13 says it beats anything they ever saw. We guarantee it.  
USES NOTHING BUT ACETYLENE. Simply connect to Presto tank, light gas, and the outfit is put to work.  
Complete as above, with connection for Presto auto tank, and full instructions.

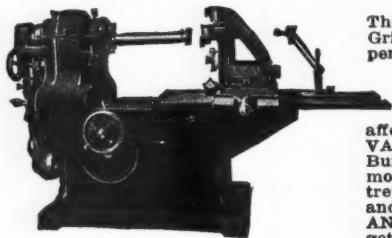
**\$7.50 IN U. S. A.**

**\$10.00 in Canada**

Order from your jobber's salesman, or

**ST. PAUL WELDING & MFG. CO., 169 W. Third St.,  
St. Paul, Minn.**

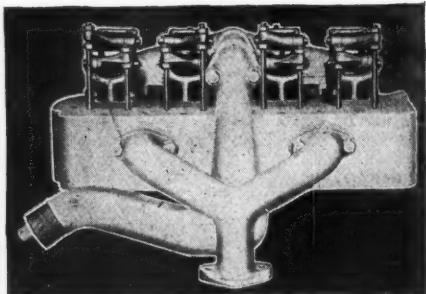
## LANDIS



The LANDIS Cylinder Grinding Machine is the perfected product of the world's largest exclusive grinder builders. Because of our volume we can afford to give you MORE VALUE for your money. Built expressly for automotive repair shops. Extremely simple in design and operation. Don't buy ANY machine without first getting a LANDIS quotation. Catalog.

**Landis Tool Co., Waynesboro, Pa.**  
New York Office—30 Church St.

## ROOF 16 OVERHEAD VALVE EQUIPMENT For Ford and Dodge Motors ROOF 8 VALVE HEAD FOR FORD MOTOR



### Stupendous Power— Lightning Speed

Ford racing cars with Roof Equipment are rivals on mile and one half mile tracks of the highest priced racing cars. Doubles the pulling power of the Ford or Dodge pleasure car or truck. Hill climbing and general road work beyond wildest dreams of the owner. Complete—ready for installation—no machine work necessary. We are headquarters for all speed equipment. No matter what you want, write us. Racing quality—lowest prices. A postal card brings you complete list of our specialties.

Jobbers—Dealers—Consumers—Write Us.

**THE LAUREL MOTORS CORPORATION, ANDERSON, INDIANA**

## BLACK & DECKER

SPECIAL  
HALF-INCH  
DRILL

"With the Pistol Grip  
and Trigger Switch"

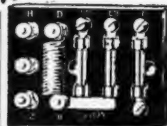


**\$58.00**

**THE BLACK & DECKER MFG. CO.**  
Towson, Md.

Protect  
Auto  
Wiring

## UNION FUSES AND ACCESSORIES



FORD FUSE BLOCK



No. 1 AG

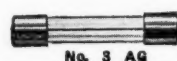
Fuses for every make of car. Fuse Block protects Ford lights and wiring. Also Fuse Boxes, special parts, stampings, etc.

Guaranteed satisfactory by oldest and largest manufacturers of electrical protecting devices. Write for catalog

**CHICAGO FUSE MFG. CO.**

Chicago

New York



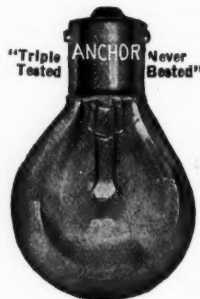
No. 3 AG



UNION

## OUT WHERE THE RUTS BEGIN

Anchor Auto Bulbs Find the Smooth Stretches



"Triple Tested" ANCHOR "Never Beaten"

Ordinary lamps will serve on brilliantly lighted boulevards, but it takes a quality bulb to point the safe way along a bad stretch of road.

To know that your headlights, with their seemingly fragile filament will take more bumping than a piece of cast iron is an assuring feat when you need light badly.

### ANCHOR AUTO BULBS

"Triple-Tested Never-Beaten"

are especially watched to see that the filament has no weak spots. Each bulb gets its bumps before it is permitted to be stamped with the Anchor mark of merit. And this quality lamp—willing to meet all comers on that basis—strange to say costs less than mediocre lamps.

Purchased everywhere for all cars.

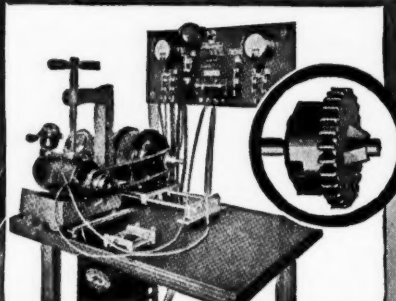
**Anchor Electric Company, 555 W. Jackson Blvd., Chicago, Ill.**  
Originators of "Same Day Service" in the Auto Bulb Industry

## New Departure Ball Bearings

*Outsell because they Excel*

The New Departure Mfg. Co., Bristol, Conn. • Detroit • Chicago

## EXCELSIOR TEST BENCH With the Positive Drive and Speed Control



### INCREASE YOUR PROFITS!

Starting, lighting and ignition pays bigger profits than any other branch of automotive service.

### The Excelsior Test Bench

equips your shop complete for this work.

**Price \$385.00**

Payable \$50 per month

Write for bulletin 975M

**WEIDENHOFF** 4350 ROOSEVELT ROAD  
CHICAGO, ILL., U. S. A.





## Add \$50 to its resale value by a \$15 Investment!

Boost your used Ford profits by selling better looking cars for more money! Replace those damaged Fenders and raise the resale value.

Bright new Peerless Fenders are "tailor made" for the Ford. They match perfectly. 20 gauge full finished steel, with a double coat of hard baked enamel.

Carry Peerless Fenders in stock. Get the good transient business by replacing "while they wait."

Write for catalog of other Peerless replacements—radiators, hoods, etc.

THE CORCORAN MFG. CO.  
Cincinnati, Ohio

### Peerless Fenders FOR FORDS



## SAFETY Front Wheel Brakes

Can be attached to ANY MAKE of car. Wonderful overhaul opportunity as every motorist wants to be up-to-date. Operates from the regular brake-pedal. Permits any car to stop in less than HALF THE DISTANCE required with rear wheel brakes alone. Safety feature appeals to all—especially women-drivers. Absolutely no danger of skidding.

Don't pass this up. It is one of the biggest money-making opportunities you will have this year. Write us NOW about this. Big discounts.

### GREEN ENGINEERING COMPANY

740 MAIN ST., DAYTON, O.

Distributors for Front Wheel Brakes: Pedro, Cal.; Walker Auto Supply only. H. P. Morgan, Tampa, Fla.; Co., New Kensington, Pa.; John Reid Air Spring Sales Co., Pittsburg, Pa.; Clarion Buick Co., John B. Mezey, New York City; Clarion, Pa.; Kittanning Buick Co., McCarthy Bros., Inc., Philadelphia, Pa.; F. L. Wirick, San

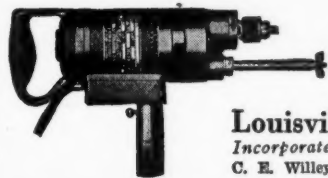
## Get This "Pioneer" \$65 Garage Special

Electric Drill  
and Valve Grinder

Greatest time and money saver, as well as money maker, for your shop—

"It Will Do The Work"

Louisville Electric Mfg. Co.  
Incorporated Louisville, Ky., U. S. A.  
C. E. Willey, Pres. J. B. McFerran, Secy.-Treas.



## FOLLETT'S NEW MODEL TIME STAMP

—accounts for every labor minute

Prints the year, month, day, hour, minute, A. M. or P. M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic—except for winding. Every machine guaranteed.



Learn the interesting details from our descriptive data.

Follett Time Recording Co., 217 High Street, Newark, N. J.  
"Established Since 1904"

## German Motor Car Exhibition

Berlin, 1924

September 26th to October 5th

at the

### Exhibition Palace Kaiserdamm

(Ausstellungshallen am Kaiserdamm)

## WAYNE

### CYLINDER REBORING MACHINE & VALVE GRINDER

Be equipped with these two efficient machines to render good service on cylinder reboring and valve grinding jobs. Save time and labor and get more profit.

Write for details.

WAYNE TOOL MFG. CO., WAYNESBORO, PA.



ACCURATELY  
**DALL**  
MACHINED

### REPLACEMENT PISTONS

Semi-steel—for use after a rebores or re-grind job. Made to manufacturer's specifications. Made to pass motor builder's inspection. Standard sizes and oversize. Write for price list.

THE DALL MOTOR PARTS CO.,  
P. O. Station D, Cleveland, Ohio

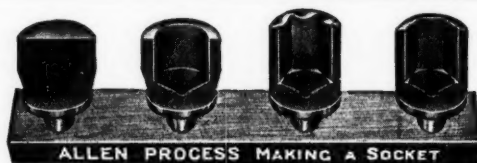
## Kawneer

### SOLID COPPER STORE FRONTS

Write for Special Book Garage Fronts

THE KAWNEER CO., 1219 Front St., Niles, Mich.

Cold-  
Drawn  
Sockets



ALLEN  
Wrench  
Sets

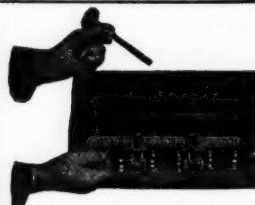
The Allen Manufacturing Company, Hartford, Conn.

### THE QUINCY SILENT AIR-MASTER

The Most Air Per Dollar Cost

WALL PUMP & COMPRESSOR CO.

Quincy, Ill., U. S. A.



## SPEED-O

### Multiple Valve Lifter

LIFTS 8 TO 12 VALVE SPRINGS  
IN LESS THAN 30 SECONDS

Manufactured by  
SPEED-O MULTIPLE VALVE LIFTER CORP.  
1928 Broadway, New York

## Don't Overstock!

The nearest Stewart Service Station carries a full line of *Stewart* accessories and parts and can give you immediate delivery service. Don't load yourself up.



## USE THE AMMCO

Cylinder Re-Conditioning Tool

Regrinds and refinishes cylinder bores. It is self-adjusting, self-aligning and self-centering. Write for Bulletin.

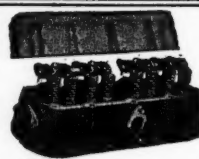
Automotive Maintenance Machinery  
Company  
551 W. Washington St. Chicago



## Real High Tension Ignition for Ford Cars

Varley coils eliminate nearly all chronic ignition trouble. Save gas. Add power. Keep plugs clean. Stop misfiring. Save repairs. \$2.50 each. Write for full particulars.

The Autocoil Co., Jersey City, N. J.



Frontenac  
CYLINDER HEAD

## PERFECT PERFORMANCE

The remarkable showing of the three Frontenac Fords in the 500 mile race was due solely to the Frontenac Cylinder Head. This head is adapted for use on YOUR Ford by its designer and builder, Arthur Chevrolet. Book, "How to Build a Frontenac-Ford," \$2; free with orders of \$50 or more. Write for FREE catalog.

CHEVROLET BROS. MFG. CO.  
410 W. 10th St. INDIANAPOLIS, IND.



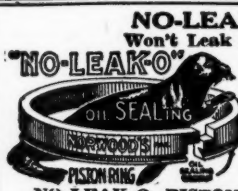
## REEL INNER RINGS

25 ft. Lengths. Cut Your Size.

LIST  
12c FT.  
25 ft. in  
Carton  
4"x1"x1 1/2"

A wonderful jobber and dealer proposition. Economy and convenience for the service station. Cut the diameter needed. 2 sizes fit 80% of cars.

Smalley Accessories Corp.  
5119 Lake Park Ave. Chicago



## NO-LEAK-O PISTON RINGS

Won't Leak Because They're Sealed With Oil

No-Leak-O Piston Rings are making money for dealers everywhere. Their "oil-sealing" groove—found only in No-Leak-O—packs an oil film in between piston and cylinder walls like "packing" in a pump. Oil and gas stay where they belong. National advertising is helping the dealer sell No-Leak-O.

It will pay you to stock No-Leak-O at once. Price 35c and up

NO-LEAK-O PISTON RING CO., Dept. 376, Muskegon, Mich.



## WEAVER

### GARAGE AND SHOP EQUIPMENT

WEAVER  
MANUFACTURING  
COMPANY  
SPRINGFIELD  
ILLINOIS  
U.S.A.

Send for Catalog

### Lorentzen Headlight Kontrol

AN AUTOMOTIVE  
NECESSITY THAT SELLS

LORENTZEN HEADLIGHT KONTROL, INC.  
60 Grand St. New York City



## The Cooper

CUT-OUT  
ENGINE TESTER AND  
CARBON OUTLET VALVE

Nationally advertised. Universally demanded. Order from Your Jobber.

## Kokomo

### PRODUCTS

Quality Windshield  
Wings and Mirrors

The line with the exclusive sales-and-service features. Order from your jobber.



## FOR VALVE REPLACEMENTS

use Thompson the unburnable valve. Laps in easily for a perfect seat. Gives better compression. Outlasts all others.

Thompson Products, Inc., Cleveland, O.



### The 100% Lubricants

Guaranteed not to cake or harden or to contain any Moisture, Mineral or Fatty Acids. Attractive proposition for Jobbers and Dealers.

RADIANT OIL CO., Inc.  
Manufacturers and Compounders

Lima

Ohio

## ALMOND "STRAIGHT LINE" DRILL CHUCKS

When buying Portable Electric Drills be sure to look for the distinctive ALMOND CHUCK, which may be easily identified by the "STRAIGHT LINE" milling on the chuck body.

Write for complete information regarding the new ALMOND "STRAIGHT LINE" CHUCKS.

T. R. Almond Mfg. Co., Ashburnham, Mass., U. S. A.

## DON'T

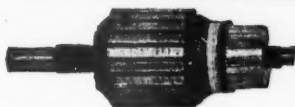
Turn Down a Rewind Job

Send it to us. We are "Armature Winding Specialists."

Profit for you in our service—Ford generator armature rewind—\$1.95. Other prices in proportion. All work guaranteed. Write for catalog and prices on all generators.

H. M. FREDERICKS CO.,

Lock Haven, Pa.



Let us send you our FREE Catalogue on

## Huetter's Fly-Wheel Gear Bands

Huetter Machine & Tool Co.

546 Kentucky Ave.

Indianapolis, Ind.

See the

**Broadcaster  
Department**

Page 121



### The "Big Four"

A complete car washing service. RUBBER COVERED—IMPOSSIBLE TO INJURE CAR. Used in connection with our Little Giant Water Savers, or can be applied to any 1/2 in. or 3/4 in. valve. Rubber Nozzle—for full water flow. Spray Nozzle—for general purposes. Spout Nozzle—for cutting mud from fenders, etc. Slot Nozzle—a sheet of water covering a large surface with force.

PRICE—Set of four Nozzles, \$2.00 less dealers discount  
The Gaylord Manufacturing Company  
Paterson, N. J.



Spring-steel, Oil-tempered Bumpers in Six Complete Styles. Guaranteed Satisfactory Attaching Arms for all Leading Makes of Cars.

We invite comparison in appearance, quality and price.

THE BELLEVUE MANUFACTURING CO., Bellevue, Ohio

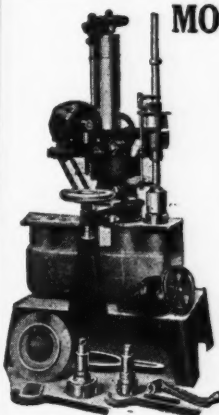
## No Need to Repair Your Own Work with These Plates

A battery man's profits soon depart when his work doesn't hold up; and there is nothing that does as much harm in a job as poor plates. You'll find that Pore-Blown Plates give a stronger kick, because they have more capacity than other plates. Unlike most high capacity plates, they give long life, due to our patented process of giving more porosity. Your trial order will serve as proof. We handle all battery parts. Write for new catalogue.

General Storage Battery Co.

2005 Locust St., St. Louis

**Pore-Blown Plates**



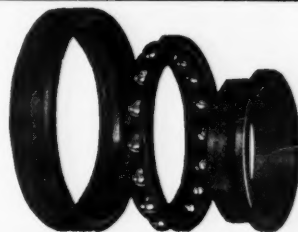
## MONEY MAKING MACHINES

STORMIZING machines are truly money makers. They enable you to make biggest profits on every overhaul job. They handle all your cylinder renewing, accurately and efficiently, enabling you to turn out the high quality work that wins your customers' lasting approval. The automatic time and labor saving features make big profits possible by lowering operation costs.

Write for the Storm Book,  
"Modern Cylinder Methods"

**STORM MFG. CO.**

406 A Sixth Ave. So. Minneapolis

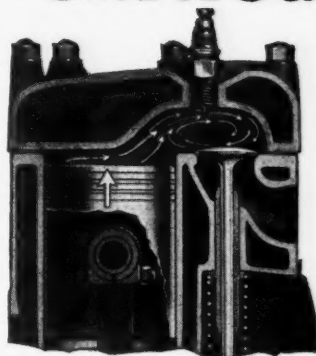


Angular Contact Radial Bearings. Angular Contact Thrust Bearings. Thrust Ball Bearings. Made to the Blue Prints and dimensions required by customers. "Star" Ball Retainers for Thrust, Magneto and Cup and Cone Bearings.

The Bearings Company of America  
Lancaster, Penna.

Western Sales Office,  
1012 Ford Bldg.,  
Detroit, Mich.

## The Ricardo Head



A revolutionary improvement in engine construction that permits such outstanding advantages as higher compressions, greater speeds, increased power and superb motor flexibility under all speeds and loads—at an operating cost that is surprisingly low.

**WAUKESHA**

Motor Company

ENGINE BUILDERS

Waukesha, Wisconsin

New York, N. Y.



## WELCO "NEVA-LOST" GAS TANK CAP \$1.50

The Welker-Hoops Mfg. Co., Middletown, Ct.

## The MINUTE METER \$2.50

Greatest clock value ever offered the trade. Accurate—handsome. Protected against vibration. Regulated without dismantling dash. Great seller. Price in Canada \$3.50.

The LEX CLOCK MANUFACTURING CO., Inc.  
Waterbury - Connecticut - U.S.A.



## 3,000 Dealers Make Bigger Profits



It will pay you to investigate

**GUARANTEED  
18 MONTHS**

**COLE BATTERY SALES CORP.** 2435-39 Indiana Ave. CHICAGO, ILL.

"It pays to buy a Kellogg"

## KELLOGG COMPRESSORS

ROCHESTER, NEW YORK

## BATTERY SERVICE EQUIPMENT!

**UNITRON  
Rectifier**

**PORTOSTAT  
Test Set**

FOREST ELECTRIC COMPANY

New and Wilsey Streets

NEWARK, N. J.

## UNIVERSAL HOSE CLAMP



Adjustable. Two sizes will clamp any hose of any diameter. Made from cold rolled steel out of wire. No rough edges to cut hose. Put on in less than a minute. Everlastingly leak-proof. Order Universal Hose Clamps. Trademark on every clamp and carton. Get them from your jobber—or write us.

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Hackensack, N. J.

**Pedrick**  
HEAT-SHAPED  
PISTON RINGS

Heat shaped to insure perfect roundness, sold at almost the price of a snap ring.  
Wilkering Mfg. Company  
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## PARAFLECTOR

At last—a headlight reflector that makes night driving safe.  
Write for full details.

The PARAFLECTOR CO., Minneapolis

## DOUBLE YOUR FORD SELLING FIELD And Make Two Profits with



**Warford**

AUXILIARY TRANSMISSION

Two-Ton Capacity—High Speed

Ask your nearest distributor to demonstrate it or write us.

THE WARFORD CORP., 44 Whitehall Street, New York

Dealers  
Every  
Where

INSIST UPON



The Original

## SILENT TIMING GEARS

MADE OF  
CELORON

Dalton & Balch, Inc.

2333 Michigan Ave., Chicago

Over a  
Million  
In Use



ELGIN QUALITY

## PISTON PINS

Regular, Oversize, Orphan

Shipped Same Day

ELGIN MACHINE WORKS

Elgin, Ill.



## Cyclo "Dynamic" Hot-Spot for Fords

This "Modified Vapor" manifold gives a gas with lots of "kick" in it for hill-climbing — exceptionally smooth running and economical at all seasons. Vacuum control varies the heating inversely with the load.

The best permanent proposition for dealers.

CYCLO MANIFOLD CO.

High & Chestnut, Akron, Ohio



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J. I. CASE T. M. COMPANY

Racine

Wisconsin

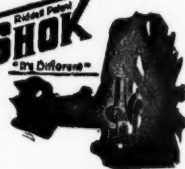


## Pulls Car Over Rough Spots



No friction—no springs—no oiling. For Fords—solid Drop Forging—\$24.00.

YORK ELECTRIC & MACHINE CO.  
York, Pa.



## JOHNSON Gas Appliances Metal-Melting Soldering Heat-Treating

**JOHNSON GAS APPLIANCE CO.**  
Cedar Rapids IOWA

Pacific Coast Repr., C. B. Babcock Co., San Francisco, Calif.  
New York Office—277 Lafayette St.

## Stevens Tools



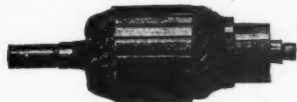
Ask for  
Shop Catalog

OVER 100 ACCURATE SHORT-CUTS  
TO GOOD WILL AND PROFIT ~ ~  
Thru your jobber—his service is economy

STEVENS & COMPANY  
375 BROADWAY-NEW YORK

## Send U. S. Your Armature Repair Work

FORD  
ARMATURES  
REWOUND  
\$2.00



MOST ANY  
TWO UNIT  
GENERATOR  
ARMATURE  
\$5.00

ALL WORK GUARANTEED—WRITE FOR PRICE LIST  
U. S. AUTO SUPPLY CO., 3845-49 S. WABASH AVE., CHICAGO

## Mosler SPIT-FIRE Timer

*Works like a clock*

New Design combines double life reversible roter and lubricated cushion felt raceway. Eliminates wear. Price, \$1.25.

MOSLER METAL PRODUCTS CORP. Mt. Vernon, N. Y.  
Manufacturers Mosler Superior Spark Plugs.

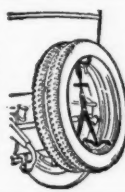
## A MONEY MAKER FOR

JOBBER DEALERS DISTRIBUTORS  
When a car owner sees this piece of equipment he wants it—he realizes what a great convenience it will be. This accounts for the record breaking sales now being made.

## DUPLIX

Second Spare Tire Carrier and Rim Tool carries second spare—locks both spares against theft—attached or removed without tools—tires cannot chafe—contracts and expands rim when changing tires. Only one size to stock for all cars. Write for details.

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DILL  
INSTANT-ONS

*Dust and Valve Cap*

*Off or On in 5 Seconds*

The Dill Manufacturing Co. Cleveland, O.

Lowest Priced Method  
of Efficient  
Spring Lubrication

R & C Oiler comes in 30 ft. rolls. One roll will equip from 6-12 cars. Installed with pliers in few minutes. Real dealer opportunity. Good profits. Write. Exclusive distributors wanted.

R. & C. MFG. CO.  
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RAMCO  
*Cushion*  
INNER RINGS

fit behind piston rings and keep them in perfect contact with the cylinder walls at any motor speed or temperature.

RAMSEY ACCESSORIES MFG. CORP., ST. LOUIS, MO.

LONG-LIFE  
**Kokomo**  
TIRES AND TUBES

KOKOMO RUBBER CO., Kokomo, Indiana  
131 South Main St.

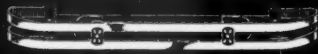
Kokomo Long Life tires and tubes make money for dealers who handle them.

Kokomo Twin-Grip Fabrics  
Kokomo Two-Grip Cords  
Kokomo Everlast Red Tubes  
Kokomo Standard Gray Tubes

Styles for all Cars

**Gemco**  
BUMPER

Write For  
FREE CATALOG  
No. 31



Made by World's Oldest  
Bumper Manufacturers

GEMCO MFG. CO.  
742 So. Pierce St. Milwaukee, Wis.

## YOU can handle this body PROFITABLY

**HYMAN  
PRESSED  
BODIES**

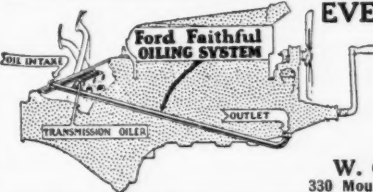
THE HYMAN PRESSED BODY CO.,

All steel construction provides lightweight with extreme strength. Outlast chassis. One design fills most light truck user's requirements. Ton and Half-ton sizes. Shipped knocked down. Low priced. Distributor and dealer terms liberal. Write.  
Huntington, W. Va.

**Biflex** *Cushion  
Bumper*  
for every car



"PROTECTION  
WITH DISTINCTION"  
THE BIFLEX CORPORATION, Waukegan, Ill.

EVERY FORD SHOULD  
HAVE THIS

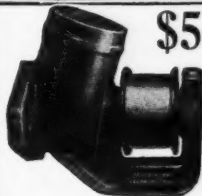
Positive lubrication for transmission. Sells on sight. Display it and ring up the profits. Retail \$5.75. Many dealers making big clean-up. Write for details.

W. O. Thompson Mfg. Co.  
330 Mountain View St. Pasadena, Cal.

## Buick Continues Hall Endorsement

After using Hall Hones for over one year Buick test out the New Hall Hone and approve of it. It is the only Hone endorsed by Buick.

THE HALL CYLINDER HONE CO.  
435 Dorr St., Toledo, Ohio



\$5

**Wood-Imes**

Water Circulating Pump  
For Ford Cars and Trucks

Is as reliable as the Ford Car itself and assures a positive cooling system that constantly functions. No more overheating—No more freezing in travel—Made engineeringly correct of best materials—quickly and easily installed. Write for Dealer Discounts and complete information.

WOOD-IMES MFG. CO., MINNEAPOLIS, MINN.  
Formerly Mid-West Mfg. Co.

**LINENDOLL EXHAUST  
HEATER**

Attractive in appearance, with cleaning features of removable heating coil with no connecting joints inside the heater pan to leak. Meets instant approval. No odor or noise. Easily installed and operated. Will boost your winter sales—get our attractive trade proposition.

THE NORWALK AUTO PARTS CO.  
Norwalk, Ohio

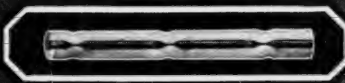
REG. U.S. PAT. OFF. **TESTBESTOS** Automobile  
Brake Lining

Manufactured by

AMERICAN ASBESTOS COMPANY  
Norristown, Pa., U. S. A.

**RESTER Acid-Core WIRE SOLDER**

"REQUIRES  
ONLY  
HEAT"



SAMPLE  
FREE

CHICAGO SOLDER CO., 4201 Wrightwood Ave.



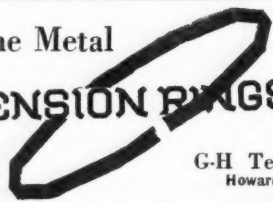
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Fan Belts and Radiator Hose

Made By  
The World's Largest Makers of Fan Belts

All in the Metal

## G-H TENSION RINGS



G-H Tension Rings of the finest steel, properly tempered, not only make but keep old motors running like new—Stop piston, slap and oil pumping. Real TENSION Rings—not just inner rings.

G-H Tension Ring Co., Inc.  
Howard St. and Armory Pl.,  
Baltimore, Md.

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FOR FORD CARS

Makes riding and driving a pleasure. Eliminates road shocks and hard steering, spring breakage, shock absorbers. Write for our money making dealer proposition.  
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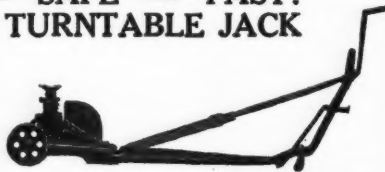
Attract favorable attention. Equip with a modern, artistic Gasco Station. Built to operate always under hardest usage and to last under severest conditions. Write for complete buying information.

GASCO MFG. CO., LANCASTER, PA.  
Sales Dept.: 25 Church St., New York

## POWERFUL — SAFE — FAST! "DICKERSON" TURNTABLE JACK

Handles all cars for all kinds of work. Great for spring and chassis repairs. Saves time—makes money for you. Priced RIGHT. Write for catalog.

C. A. DICKERSON  
COMPRESSOR CORP.  
Buffalo, N. Y.



*Yes!* Outperforms any car in its class  
**GARDNER**

BUILT BY THE GARDNER MOTOR CO.—BUILDERS OF VEHICLES SINCE 1882



140 Combinations  
—all in this ONE set

Everything you need, in one small box, compact, accessible, and a real mechanic's outfit. Sockets will not break. Fully guaranteed. Ask your dealer or write us.

The Eastern Machine Screw Corp.  
10-20 Barclay Street, New Haven, Conn.



## INSHIELD DRIVING LIGHTS

INSIDE THE WINDSHIELD—NO GLASS TO CUT

INSHIELD 8 4 1/2 in. diameter. Heavy Nickel or Black Enamel. Made of heavy sheet brass. 21 c. p. Mazda precision type tipless bulb, silver, triple-plated reflector \$7.50

INSHIELD SENIOR 5 1/2 in. diameter. Nickel finish only. Simplest and best inner-controlled driving light made. \$10.00

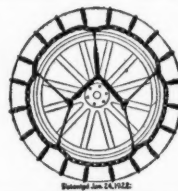
The Inshield Products Co., Toledo, Ohio  
Formerly the Thal & Bitter Machine Co.

Patented Oct. 30, 1923

## Meachem Gear Rings for Fly Wheels

Quality rings at lowest prices. Get our list.

MEACHEM GEAR CORPORATION  
Syracuse, N. Y.



**CHANEENZE**  
IMPROVED ANTI-SKID CHAIN TIGHTENER  
Helps Chain to Creep While Taking Up the Slack

An exclusive sales feature!  
Retail Price, \$1.00 Pair.

Dealers—Jobbers—Write—Discounts Liberal.

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318 E. Genesee St. Syracuse, N. Y.

## BIGGER PROFITS FOR YOU NOW WITH NEW 8 HOUR BATTERY CHARGING

HB 8-Hour Constant Potential Battery Charging doubles your present income. Lowers charging cost, saves one-half on labor, one-half on rental batteries needed. Patented HB Voltage Regulator eliminates reversing. \$35 cash brings complete outfit. Your big monthly profits easily carry small payments. 30 days' free trial. Write for bulletin. Hobart Bros. Co. Box AR 22, Troy, Ohio.



## THE LOWEST-PRICED COMPLETE OUTFIT ON THE MARKET

**Lycoming**  
MOTORS

FINE FOURS AND EIGHTS—IN—LINE

LYCOMING MANUFACTURING CO., Williamsport, Pa.

**S & M** Highest Grade—Most Powerful  
and Durable Spot-Lite Made  
SPOT-LITES Sold NATIONALLY  
By Jobbers

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Isolators  
Lock  
Plates.  
An  
Exclusive  
Vesta  
Feature



As Old As  
The Auto Industry

Vesta has 27 years of experience built into it. The isolators have been used for 8 years. Always in keeping with automotive requirements. Write for our proposition.

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Chicago, Ill.

Thirty-seven  
BRANCHES  
AHLBERG BEARING COMPANY  
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"The Best-Equipped Shop  
Gets the Business"





# The Broadcaster

A Department that will Find What You Want

## PARTS and REPAIRS

## HOUSE OF A MILLION AUTO PARTS

THE LARGEST STOCK OF NEW AND USED CAR AND TRUCK PARTS IN THE WORLD. WE HAVE EVERYTHING.

New and Used Motors, Gears, Axles, Bearings, Springs, Magneto's, Generators, Clutches, Starters, Universal Joints, Radiators, Cushions, Wheels (Wood, Disk, Wire), Carburetors, Piston Rings and Pins, etc.

Always mention model and serial number in order.

Write us. All inquiries answered promptly

DOUGLAS AUTO PARTS CO., INC.  
2003-5-7-9 South State St. Chicago, Ill.

## NEW AND USED AUTO PARTS

We have wrecked over a thousand cars.

SANDER BROS. AUTO WRECKING CO.  
WEST POINT, IOWA

## JANSEN FLY WHEEL GEAR RINGS

Chevrolet 490.....\$3.00  
Chalmers ..... 4.00

JANSEN MACHINE COMPANY  
Des Moines, Iowa

## DOWMETAL PISTONS

Lighter, stronger, and longer wearing than aluminum or iron. Can be fitted with bronze bushings in the wrist pin holes same as in iron pistons. Dowmetal has no permanent growth. The expansion is little more than iron.

### SEND FOR PARTICULARS

LAMMERT & MANN CO.  
Cylinder and Crankshaft Grinding  
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## AUTO Save 50 - 90% 2000 Models PARTS

NEW AND USED GEARS, AXLES, BEARINGS, SPRINGS, MAGNETOS, GENERATORS, ETC. JOBBERS IN BANKRUPT AUTO SUPPLIES.

BRIGHTMAN AUTO EXCHANGE  
321 Windsor Ave. HARTFORD, CONN.

ANY PART for ANY CAR NEW or USED Send for Catalogue Cincinnati Auto Parts & Wrecking Co. 712-714 Walnut St. CINCINNATI, OHIO Parts our middle name

## INFORMATION

Six cents a word is the rate for all undisplayed advertisements set solid, regular want ad style; all capitals, 9c. a word; all capitals leaded, 12c. a word; minimum charge \$1 an insertion; payable in advance (see next paragraph).

Ten per cent discount if one payment is made in advance for four or more consecutive insertions. Advertisements other than "Positions Wanted" will be billed monthly if run more than four times.

Add five words for address if replies are to come to a box number address at any of our offices. These replies are forwarded each day as received, in new envelopes, at no extra charge.

Refund will be made if all insertions ordered are not needed, the amount refunded being the difference between cost of insertions given and full amount paid.

Telephone orders must be confirmed in writing same day. No allowances can be made for errors of any kind unless prompt notification is sent us.

When replying to blind ads be careful to put on your envelope the correct box number and do not enclose original letters of recommendation—send copies.

Displayed advertisements are sold by the inch. Rates will be furnished upon application.

The right is reserved to refuse any advertisement and also to rewrite and edit copy furnished whenever the publishers consider it advisable to do this.

## THE BROADCASTER DEPARTMENT

## THE CLASS JOURNAL COMPANY

239 W. 39th St., New York  
5 S. Wabash Ave., Chicago

## PARTS and REPAIRS

## AUTO PARTS

SAVES 50% TO 75% ON ALL CARS

New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or Write

INDIANA AUTO PARTS CO.  
316-18 NO. ILLINOIS ST. INDIANAPOLIS, IND.  
LARGEST CAR WRECKERS IN INDIANA

## PARTS FOR AUTOS AND TRUCKS

WHAT DO YOU NEED? We have it. Gray's Auto Parts Company, 3213 Brighton Road, Pittsburgh, Pa.

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## AUTOMOTIVE PATENTS

Engineer-Attorney Specializing in Power and Automotive Inventions

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BOOKLET FREE HIGHEST REFERENCES PROMPTNESS ASSURED BEST RESULTS

Send drawing or model for examination and report as to patentability

WATSON E. COLEMAN, Patent Lawyer  
644 G. Street, N. W., Washington, D. C.

## Attorney-at-Law and Solicitor of Patents

C. L. PARKER

Formerly Member Examining Corps, United States Patent Office

American and foreign Patents secured. Searches made to determine patentability and validity. Patent suits conducted. Pamphlet of instruction sent upon request. McGill Building, WASHINGTON, D. C.

## MISCELLANEOUS

I want to meet an experienced automobile man with proven ability who can finance a half interest in an established agency for two of America's best known cars. One of them a General Motors product and the other a leading independent manufacturer. This business has been established a year and has fully proven it is located in one of the liveliest districts in Chicago for both new and used car sales. It occupies a modern building under a very favorable long lease and has a well organized service department and a complete auto repair shop in connection. The kind of a man I am looking for can have a salary of \$5,000 a year and in addition can make out of his interest in the business from \$15,000 to \$20,000. Other business interests compel the present owners to seek some one with ability in the automobile line, who could also handle an interest requiring \$30,000. Address Box 6162, care of Motor Age, 5 S. Wabash Ave., Chicago, Ill.

For Sale or to let on royalty, U. S. Patent on Magnetic Controller Vacuum Tank. No more flooded motors on account of broken springs or punctured floats. Thoroughly tested and a perfect worker. Will make a great replacement accessory. A. F. Boylan, L. B. 68, Denison, Iowa.

ROADSTER BODIES, HUDSON SUPER-SIX. We have two aluminum bodies made by Noma Motor Corporation. New York, upholstered in blue leather with cushions and windshield frame. A low snappy roadster body for any Hudson Chassis. Price \$250.00 crated f. o. b. Gentry Motor Company, Enid, Oklahoma.

10,000 automobile bearings, 60c for quick sale (list price \$4.22) in original factory packing, new, well oiled, 208 Double Row, 1209 Single Row. Write or wire. United Hide, Iron & Metal Company, Elmira, New York.

WANTED—A specialty to manufacture and sell on a royalty basis, or permanent manufacturing arrangement with some live selling organization. We have large plant well equipped. Box 6165, care of Motor Age, 5 S. Wabash Ave., Chicago, Ill.

Front wheel brakes for any make car. Have about 80 sets and tools. Also patents. Chance for automobile mechanic. A. Hubalek, 744 Willoughby Ave., Brooklyn, New York.

FOR SALE—Liberty aircraft engines 400 h. p. REQUIRED—Spare parts same engines. Agents wanted. Auguste Michel, Arsenal, Strasbourg, France.

Motor and Transmission for Service Model HX Truck. Good condition. Selling account State License too high. Address Box 6164, care of Motor Age, 5 S. Wabash Ave., Chicago, Ill.

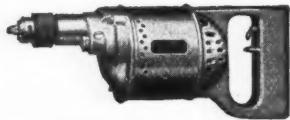
## HELP WANTED

ATTRACTIVE OPPORTUNITY FOR SALESMAN—Experienced Pressed Steel and Stamping salesman, one with contact with automobile and other stamping users. Plant located in Middle West, offers attractive proposition to the right man. All correspondence held confidential. Address Box 6163, care of Motor Age, 5 S. Wabash Ave., Chicago, Ill.

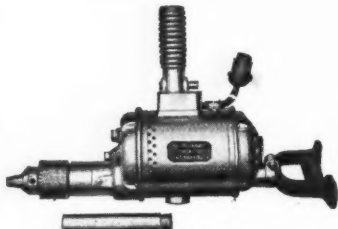
We want a few more distributors and jobbers, also district salesman to handle NICKL-IT, a non-abrasive, renickeling and replating polish. Write us for our liberal proposition. Nickl-It Distributing Co., 20-22 South 15th St., Philadelphia, Penna.

You can reach the big men of the world's biggest industry at a cost of only 6c a word by using Broadcaster Advertising.

## The Cincinnati



Type UL 1/4" Drill  
Price \$28.00



Type UU 1/2" Drill  
Price \$58.00

**Saves Over  
50% Time  
and Labor on  
Every Carbon  
Cleaning and  
Valve Grinding  
Job!**

Garages and Service Stations from coast to coast have discovered the secret of speedy and efficient valve grinding and carbon cleaning in the use of "The Cincinnati" 1/4-in. or 1/2-in. drill in connection with our oscillating valve grinder and carbon cleaning brush. Attachments fit into chuck, combining three machines in one.

Send for Complete Catalog

### THE CINCINNATI ELECTRICAL TOOL CO.

1515 Freeman Ave.

Cincinnati, Ohio

New York, 50 Church St.

Cleveland, 517 Bangor Bldg.

Philadelphia, 1220 Real Estate Trust Bldg.

San Francisco, W. H. Gilbert, Jr., 1710 Larkin St.

## DANGEROUS



## WALL PRESSURE

## Impossible With APEX

Have no fears—Genuine APEX Innerings can never score cylinder walls; never increase wall pressure; never cause over-heating; never even interfere with the oil film when properly installed.

Patented, exclusive, long reverse curves (shown above) can not force the piston ring outward—they gently cushion the piston rings, stabilize the piston and make the ring faces work true with the cylinder wall—a result impossible with sharply crimped, straight sided imitations.

No good jobber will willfully substitute. But be safe! Insist on APEX and if you can't get them order from us.

Guaranteed APEX Innerings are guaranteed to stop oil pumping, piston slap; increase power, performance and pick-up in any internal combustion motor.

THOMSON MFG. CO., Dept. C, Peoria, Ill.

20c ea.  
(retail) up  
to 5/8 in.  
wide or 5  
in. diam.



Patented  
in U. S.  
and Canada.

"If it isn't an APEX—it isn't an INNERING."

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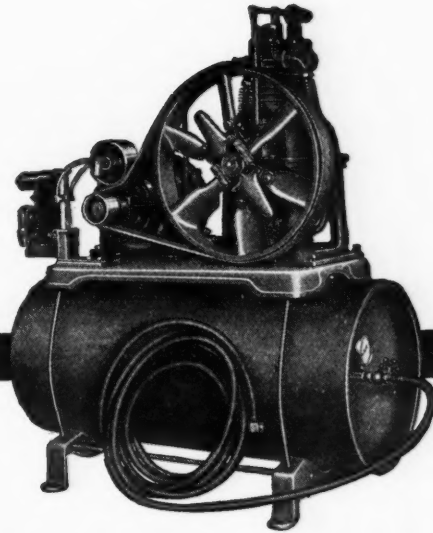
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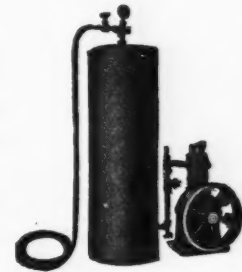
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## The Used Car Evil—

need be no evil at all,  
any more than a used overcoat evil  
or a used shoe evil.

All men have to do, is buy good  
cars and wear them out.

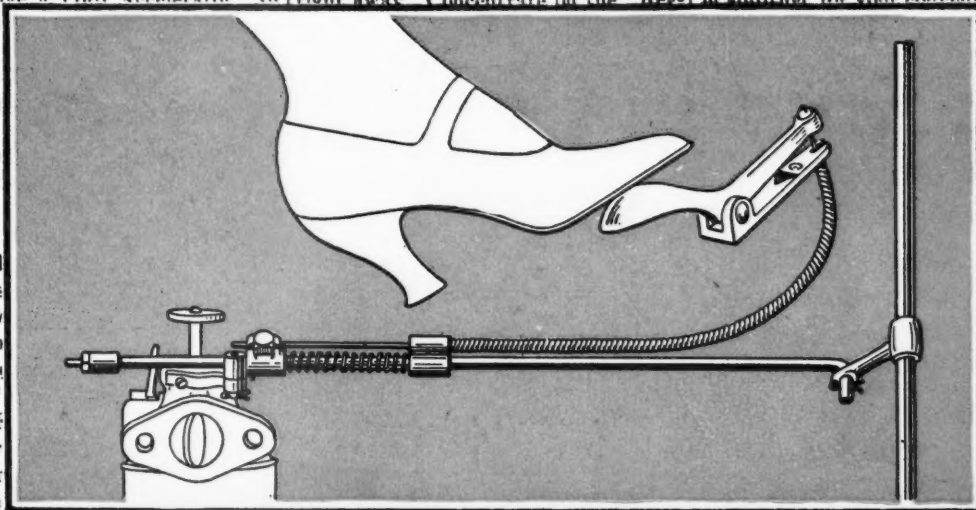
15 out of 16 Packard Six owners  
expect to keep their cars a period  
of years,  
and get out of them the long and  
desirable mileage life that Packard  
has built into them.

*Packard Six and Packard Eight both furnished in ten body types, open and enclosed. Packard's extremely liberal time-payment plan makes possible the immediate enjoyment of a Packard—purchasing out of income instead of capital*

ASK THE MAN WHO OWNS ONE

way to judge a Ford Accelerator. In right away. Concentrate on the "Reg- in addition for your convenience, ware-

the under- Accelerato motion B pullrod is and dust. protects st ideal friet the owner carburetor thing good when you s like the W you increa profits. P Williams " any other F You'll hav dollar sale along with



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ford foot w York. Williams no lost rburator oil, mud not only provides his'gives er some- it. And throttle at \$3.00 me and s of the son with e world. a three hat goes

## EXCLUSIVE FEATURES BUILD SALES

The Williams pedal can be swung to any position convenient to the driver. No change to any nut, bolt or screw of Ford chassis necessary for installation. No interference with floorboards. Never in the way. Operates independently of hand throttle. Built as a scientific unit—not merely an assembly of parts. Compare the Williams with any other Ford foot throttle built—then order your service stock from your jobber—right away. Concentrate on the "Regular" at \$3.00. That makes you the most profit.

## WHAT THE FORD OWNER WANTS

Show the average Ford owner something good and he will buy it. And when you sell him a good foot throttle like the Williams "Regular" at \$3.00 you increase both your volume and profits. Point out the features of the Williams "Regular" in comparison with any other Ford accelerator in the world. You'll have no trouble making a three dollar sale—and the profit that goes along with it.

## WILLIAMS SHIPS CARLOADS EAST

Straight carload shipments are being made to our Chicago warehouse. And in addition, for your convenience, warehouse stock of these famous Ford foot throttles is being carried in New York.

## HOW TO JUDGE A FORD FOOT THROTTLE

When you judge an automobile you look under the hood. That's also the way to judge a Ford Accelerator. In the under-hood mechanism of Williams Accelerators there is absolutely no lost motion. Babbitt bearing on carburetor pullrod is proof against heat, oil, mud and dust. Flexible brass tube not only protects steel control wire, but provides ideal frictional surface for it. This gives the owner the utmost in silk-smooth carburetor control.

## FLEXIBLE CONTROL

Inside of the flexible brass tube is a spring steel control wire. The tube acts as a guide—protects the wire and offers an ideal sliding surface. It enables the gas to be fed steadily and without shock

## WORLD'S LARGEST ACCELERATOR MANUFACTURERS

Ford owners have spread the good word about the quality of Williams Accelerators so quickly, that today the Williams Bros. factory is the largest in the world devoted exclusively to the manufacture of Ford foot throttles. In layout, in design, in modern machinery equipment, the Williams Accelerator factory is the very last word in efficiency. Volume production in this model plant enable Williams Accelerators to give more value per dollar.

## ACCELERATOR PROFITS HELP PAY DEALER'S RENT

"Right on my gas pump I keep a Williams Accelerator on display," says a live Eastern dealer. "Every time a Ford comes up for gas, I show him the Williams Accelerator and tell him how it will save its cost in gasoline in a few months of running. It's a cinch to sell Williams Accelerators this way."

Why don't you try this plan—

## FOOT THROTTLE

Ford ow word about celerators

Williams Bros. factory is the largest in the world devoted exclusively to the manufacture of Ford foot throttles. In layout, in design, in modern machinery equipment, the Williams Accelerator

# WILLIAMS ACCELERATOR for FORD CARS

There is nothing to wear out—nothing

WILLIAMS BROS. AIRCRAFT CORP.  
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No intere ce with floorboard. No interference with floorboards. Never in the way. Operates independently of hand throttle. Built as a scientific unit—not merely an assembly of parts. Compare the Williams with any other

## FOR SALES

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JUNIOR \$1.50

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...and in magazines, too!



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